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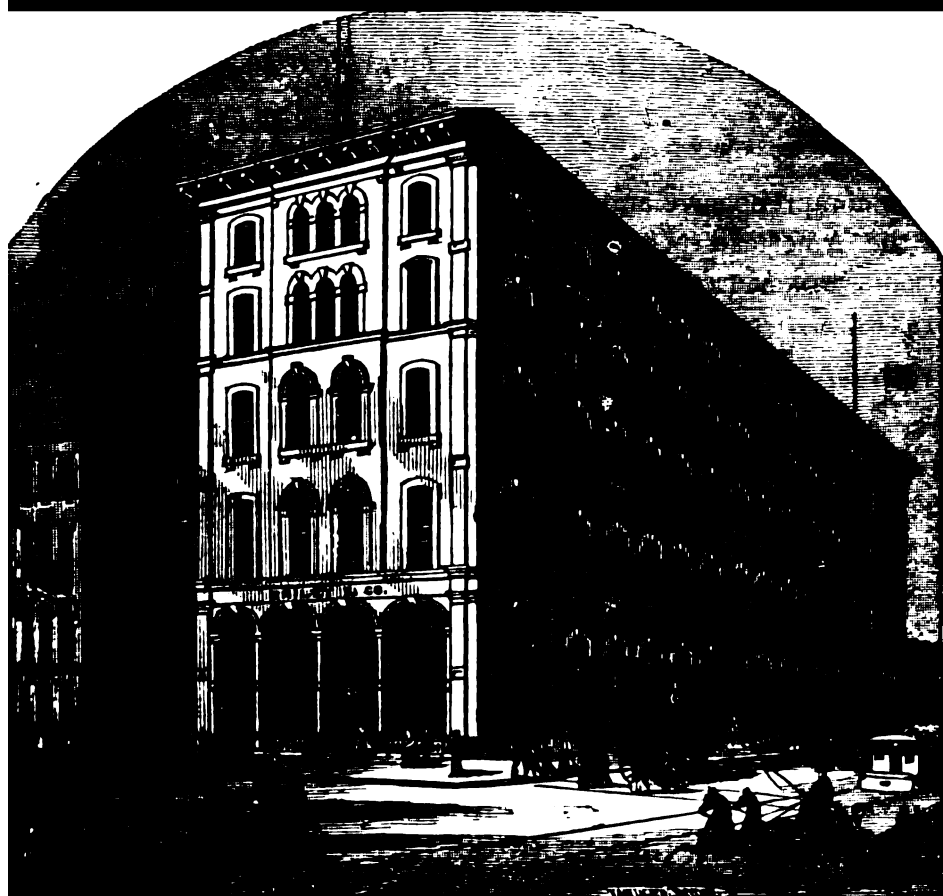
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1904

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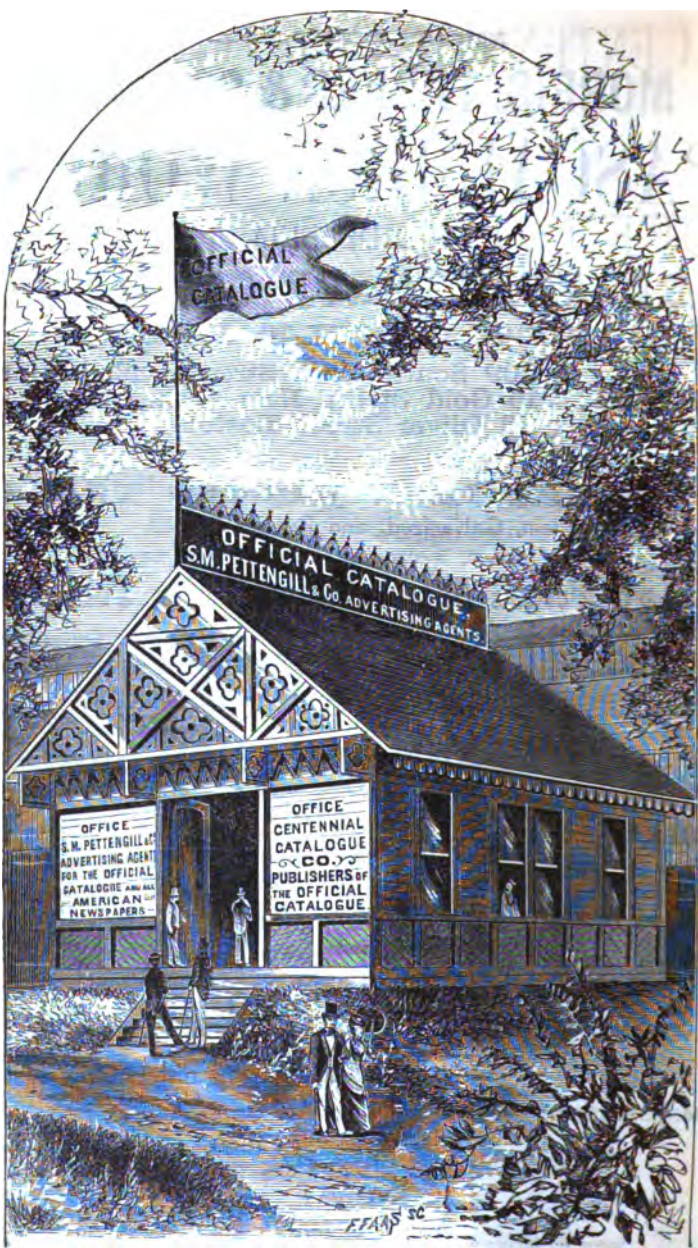
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OF THE

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INTERNATIONAL EXHIBITION.

1876

Official Catalogue.

COMPLETE IN ONE VOLUME.

- I. MAIN BUILDING.
- II. DEPARTMENT OF ART.
- III. DEPARTMENT OF MACHINERY.
- IV. DEPARTMENTS OF AGRICULTURE AND
HORTICULTURE.

REVISED EDITION.

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SUBJECT INDEX, NATIONAL EXHIBITS.

DEPT. I.
MINING AND
METALLURGY.

DEPT. II.
MANUFACTURES.

DEPT. III.
EDUCATION AND SCIENCE.

NATIONS.	Minerals, Ores, Stone, Mining Products.		Metallurgical Pro- ducts.		Mining Engineering.		Chemical Manu- factures.		Ceramics, Pottery, etc.		Furniture, etc.		Wools and Woven Goods of Vegetable or Mineral Materials.		Woolen and Felted Goods of Wool, etc.		Silk and Silk Fabrics.		Clothing, Jewelry, etc.		Paper, Blank Books, Stationery.		Weapons, etc.		Medicine, Surgery, Prostheses.		Hardware, Edge Tools, Cutlery, and Metallic Products.		Fabrics of Vegetable, Animal, or Mineral Materials.		Carriages, Vehicles, and Accessories.		Educational Systems, Methods, and Libra- ries.		Institutions and Organ- izations.		Scientific and Philoso- phical Instruments and Methods.		Engineering, Archi- tecture, Maps, etc.		Physical, Social, and Moral Condition of Man.		Art.		DEPT. IV.		DEPT. V.		Machinery.		DEPT. VI.		Agriculture.		DEPT. VII.		Horticulture.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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THE INTERNATIONAL EXHIBITION OF 1876.

THE Congress of the United States, by an act approved March 3d, 1871, provided that the centennial anniversary of the promulgation of the Declaration of American Independence in Philadelphia should be celebrated in that city "by holding an International Exhibition of Arts, Manufactures, and Products of the Soil and Mine." The preparation of the Exhibition was, by the act, confided to the United States Centennial Commission, composed of a commissioner and alternate commissioner nominated by the governor of each State and Territory, and confirmed by the President of the United States. A subsequent act, approved June 1st, 1872, created the Centennial Board of Finance, charged with the financial conduct of the Exhibition.

A proclamation by the President of the United States, dated July 3d, 1873, announced the International Exhibition, and commended it to all nations. An act of Congress, approved June 5th, 1874, requested the President, in the name of the United States, to invite the governments of foreign nations to participate in the Exhibition. The invitation thus extended was accepted by the governments of

Argentine Republic,	Queensland,	Seychelles Archipelago,	Norway,
Austria-Hungary,	New Zealand,	Tasmania,	Orange Free State,
Belgium,	New South Wales,	Trinidad,	Peru,
Brazil,	Victoria,	India,	Philippine Islands,
Canada,	South Australia,	Bermuda, and	Portugal,
Chili,	India,	Jamaica,	Russia,
China,	Cape of Good Hope,	Hawaii,	Spain,
Denmark,	Bahamas,	Italy,	Sweden,
Egypt,	British Gulana,	Japan,	Switzerland,
France, with Algeria,	Ceylon,	Liberia,	Tunis,
Germany,	Straits Settlements,	Luxembourg,	Turkey,
Great Britain, with colonies, viz.	Gold Coast,	Mexico,	Venezuela.
	Mauritius,	Netherlands,	

The Centennial Commission provided for the classification of the objects to be exhibited in seven departments, which were referred to five exhibition buildings in this manner:

DEPARTMENT.	BUILDINGS.	ACRES COVERED.
I. Mining and Metallurgy, } II. Manufactures, } III. Education and Science, }	Main Building,	21.47
IV. Art,	Art Gallery	1.5
V. Machinery,	Machinery Building,	14.
VI. Agriculture,	Agricultural Building,	10.
VII. Horticulture,	Horticultural Building,	1.5
Total, ...		48.47

The applications for exhibiting space, however, both at home and from abroad, so exceeded the calculations that had been made as to necessitate the erection of annexes supplementing the capacity of each of these buildings. Enumerations of these additional structures will be found on subsequent pages. The classes of objects grouped in the several departments are indicated in the following synopsis of the classification of the Exhibition.

CLASSIFICATION.

DEPARTMENT IV.—ART.

SCULPTURE.

- CLASS 400.—Figures and groups in stone, metal, clay, or plaster.
CLASS 401.—Bas-reliefs, in stone or metal; electrotype copies.
CLASS 402.—Medals, pressed and engraved; electrotypes of medals.
CLASS 403.—Hammered and wrought work—*repoussé* and *rehaussé* work, embossed and engraved relief work.
CLASS 404.—Cameos, intaglios, engraved stones, dies, seals, etc.
CLASS 405.—Carvings in wood, ivory, and metal.

PAINTING.

- CLASS 410.—Paintings in oil on canvas, panels, etc.
CLASS 411.—Water color pictures; aquarelles, miniatures, etc.
CLASS 412.—Frescoes, cartoons for frescoes, etc.
CLASS 413.—Painting with vitrifiable colors. Pictures on porcelain, enamel, and metal.

ENGRAVING AND LITHOGRAPHY.

- CLASS 420.—Drawings with pen, pencil, or crayons.
CLASS 421.—Line engravings from steel, copper, or stone.
CLASS 422.—Wood engravings.
CLASS 423.—Lithographs, zincographs, etc.
CLASS 424.—Chromo-lithographs.

PHOTOGRAPHY.

- CLASS 430.—Photographs on paper, metal, glass, wood, fabrics, or enamel surfaces.
CLASS 431.—Prints from photo-relief plates, carbon prints, etc.
CLASS 432.—Photo-lithographs, etc.
CLASS 433.—Photographic apparatus and supplies.

INDUSTRIAL AND ARCHITECTURAL DESIGNS, MODELS, AND DECORATIONS.

- CLASS 440.—Industrial designs.
CLASS 441.—Architectural designs; studies and fragments, representations and projects of edifices; restorations from ruins and from documents.
CLASS 442.—Decoration of interiors of buildings.
CLASS 443.—Artistic hardware and trimmings, artistic castings, forged metal work for decoration, etc.

DECORATION WITH CERAMIC AND VITREOUS MATERIALS, MOSAIC AND INLAID WORK.

- CLASS 450.—Mosaic and inlaid work in stone.
CLASS 451.—Mosaic and inlaid work in tiles, tessaræ, glass, etc.
CLASS 452.—Inlaid work in wood and metal, parquetry, tables, etc.
CLASS 453.—Stained glass.
CLASS 454.—Miscellaneous objects of art.

CLASSIFICATION.

DEPARTMENT V.—MACHINERY.

MACHINES, TOOLS, AND APPARATUS OF MINING, METALLURGY, CHEMISTRY, AND THE EXTRACTIVE ARTS.

CLASS 500.—Rock drilling.

CLASS 501.—Well and shaft boring.

CLASS 502.—Machines, apparatus, and implements for coal cutting.

CLASS 503.—Hoisting machinery and accessories.

CLASS 504.—Pumping, draining, and ventilating.

CLASS 505.—Crushing, grinding, sorting, and dressing. Breakers, stamps, mills, pans, screens, sieves, jigs, concentrators.

CLASS 506.—Furnaces, smelting apparatus, and accessories.

CLASS 507.—Machinery used in Bessemer process.

CLASS 508.—Chemical manufacturing machinery. Electroplating. Paint and powder mills. Blacking and soap-making machinery.

CLASS 509.—Gas machinery and apparatus.

MACHINES AND TOOLS FOR WORKING METAL, WOOD, AND STONE.

CLASS 510.—Planing, sawing, veneering, grooving, mortising, tonguing, cutting, moulding, stamping, carving, and cask-making machines, etc., cork-cutting machines.

CLASS 511.—Direct acting steam sawing machines, with gang saws. Bark mills.

CLASS 512.—Rolling mills, bloom squeezers, blowing fans. Rivet, nail, bolt, and tack making machinery.

CLASS 513.—Furnaces and apparatus for casting metals, with specimens of work.

CLASS 514.—Steam, trip, and other hammers, with specimens of work, anvils, forges, bellows.

CLASS 515.—Planing, drilling, slotting, turning, shaping, punching, stamping, cutting, and coining machines. Wheel cutting and dividing machines, emery wheels, drills, taps, gauges, dies, etc. Grindstones.

CLASS 516.—Stone-sawing and planing machines, dressing, shaping, and polishing. sand blasts, Tilghman's machines, glass-grinding machines, etc.

CLASS 517.—Brick, pottery, and tile machines. Machines for making artificial stone.

CLASS 518.—Furnaces, moulds, blowpipes, etc., for making glass and glassware.

CLASS 519.—Tools, implements, etc., for working metal, wood, and stone.

MACHINES AND IMPLEMENTS OF SPINNING, WEAVING, FELTING, AND PAPER MAKING.

CLASS 520.—Machines for the manufacture of silk goods.

CLASS 521.—Machines for the manufacture of cotton goods.

CLASS 522.—Machines for the manufacture of woolen goods, carpets, and tapestry.

CLASS 523.—Machines for the manufacture of linen goods.

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Thomas Ranney, Boise City.
Y. E. Logan, Boise City.
M. J. Hill, Silver City.
B. Wilson, Idaho City.
John McNally, Rocky Bar.
L. P. Brown, Mount Idaho.

ILLINOIS.

John P. Reynolds, *President*, Chicago.
J. C. Smith, *Secretary*, Galena.
Carlile Mason, Chicago.

Francis Colton, Galesburg.
Amos C. Spafford, Rockford.

INDIANA.

A. L. Roache, *Chairman*, Indianapolis.
Thomas E. Garvin, Evansville.
John Sutherland, La Porte.

E. T. Cox, *Secretary*, Indianapolis.
John S. Williams, La Fayette.

IOWA.

Hon. S. Kirkwood, Des Moines.
Alex. Shaw, Des Moines.
Wm. Christy.

B. R. Sherman.
I. T. Young.

KANSAS.

George T. Anthony, *President*, Leavenworth.
W. S. Parkinson, *V.-President*, Ottawa.
Alfred Gray, *Secretary*, Topeka.
George W. Glick, *Treasurer*, Atchison.

T. C. Henry, Abilene.
Charles F. Koester, Marysville.
E. P. Bancroft, Emporia.
W. E. Barnes, Vineland.
R. W. Wright, Oswego.

KENTUCKY.

W. B. Machen, Eddyville, Lyon Co.
Clinton Griffith, Owenstown, Daviess Co.
James H. Bowden, Russellville, Logan Co.
E. H. Hobson, Greensburg, Green Co.
E. D. Standiford, Louisville, Jefferson Co.

J. C. Hughes, Florence, Boone Co.
William Warfield, Lexington, Fayette Co.
Jennings Price, Lancaster.
John Dishman, Barbourville, Knox Co.
F. L. Cleveland, Augusta, Beachen Co.

LOUISIANA.

H. Bonzano, *President*, New Orleans.
E. C. Hancock, New Orleans.

Effingham Lawrence, New Orleans.

MAINE.

Charles W. Roberts, Bangor.
F. E. Shaw, Paris.
Edwin Sprague, Rockland.

W. H. Simpson, Belfast.
F. N. Dow, Portland.
E. Knight, Portland.

MARYLAND.

John G. Morris, Baltimore.
J. Thomas Scharf, Baltimore.
George A. Hanson, Baltimore.

Douglass H. Thomas, Baltimore.
William H. Corner, Baltimore.

MASSACHUSETTS.

J. T. Chadwick, Boston.
Curtis Guild, Boston.
Hiram Hosford, Lowell.
C. E. Whitier, Whitiersville.
George T. Plunkett, Hinsdale.
Henry M. Phillips, Springfield.
E. T. Miles, Fitchburg.
J. H. Claremont, Boston.
Lewis N. Gilbert, Ware.

John Savery, Wareham.
Wm. F. Whiting, Ashburnham.
Chester Snow, Harwick.
C. E. Yeomans, Westfield.
S. B. Phinney, Barnstable.
Daniel Needham, Groton.
H. G. Knight, Easthampton.
Harrison Tweed, Taunton.
E. W. Kinsley, Boston.

MICHIGAN.

John J. Bagley, Detroit.
Henry Fralick, Grand Rapids.
Jonathan J. Woodman, Paw Paw.

Merrill J. Mills, Detroit.
Jay A. Hubbell, Houghton.
F. W. Noble, *Secretary*, Detroit.

MINNESOTA.

Paris Gibson, Minneapolis.
Pennock Pusey, St. Paul.

Philip S. Harris, St. Paul.

MISSISSIPPI.

A. M. West, *President*, Holly Springs.
H. W. Warren, *Vice-President*, Jackson.
H. M. Street, *Treasurer*, Booneville.
A. E. Lewis, Scranton.
James A. Hoskins, Brookhaven.

Frank Burkitt, Houston.
J. L. Power, *Secretary*, Jackson.
J. B. Yellowley, Madison Station.
W. G. Paxton, Vicksburg.

MISSOURI.

Thomas Allen, *President*, St. Louis.
J. F. Cook, LL.D., Lagrange.
J. W. Harris, Rocheport.

J. W. Strong, *Vice-President*, St. Joseph.
P. Murphy, Coplin.
J. L. Tracy, St. Louis.

MONTANA.

T. C. Power, Fort Benton, Chateau.
Wm. Peck, Bannack, Beaverhead.
Armstrong, Glendale, Beaverhead.
Mrs. S. B. Bowen, Bozeman, Gallatin.

W. A. Clark, Deer Lodge, Deer Lodge.
D. J. Welch, Missoula, Missoula.
J. A. Harding, Radersburg, Jefferson.
T. E. Collins, Diamond, Meagher.

NEBRASKA.

Daniel H. Wheeler, Plattsmouth.
J. S. Morton, Nebraska City.
W. D. Scott, Rulo.

Gay C. Barton, North Platte.
Charles F. Manderson, Omaha.

NEVADA.

C. C. Stevenson, *President*, Gold Hill.
Thomas G. Taylor, Gold Hill.
R. Robinson, White Pine.
J. D. Sullivan, Eureka.
H. H. Day, Lincoln.
F. R. Hall, Nye.
A. A. Curtis, Lander.
John C. Fall, Humboldt.

H. M. Yerington, Ormsby.
H. T. Rice, Ormsby.
B. F. Leite, Washoe.
J. R. Johnson, Douglass.
Levi Wilscey, Elk.
Jeremiah Miller, Esmeralda.
B. P. Hazeltine.

NEW HAMPSHIRE.

James A. Weston, *Chairman*, Manchester.
Lewis W. Clark, Manchester.
Mason W. Tippan, Bradford.

Edward D. Baker, Claremont.
James F. Briggs, *Secretary*, Manchester.
George W. Riddle, Manchester.

NEW JERSEY.

Samuel C. Brown, *President*, Trenton.
Edward Bettle, Camden.
Henry L. Janeway, New Brunswick.
John T. Bird, Flemington.

Thomas H. Dale, Paterson.
Sanford B. Hunt, Newark.
Nathan W. Condict, Jersey City.
Patrick T. Quinn, *Secretary*, Newark.

NEW MEXICO.

Stephen B. Elkins, Washington, D. C.
W. F. M. Army, *Secretary*, Fort Defiance.
Richard Hudson, Silver City.

W. G. Ritch, *President*, Santa Fé.
Thomas S. Tucker, *Treasurer*, Santa Fé.
José D. Sena, Santa Fé.

NEW YORK.

Alonzo B. Cornell, Ithaca, Tompkins Co.
John Murdock, Elmira, Chemung Co.
Jackson S. Schultz, No. 63 Cliff St., New York City.
Frank Leslie, No. 537 Pearl St., New York City.

Felix Campbell, No. 1315 Pacific St., Brooklyn.
H. Havermyer, New York.
Frederick A. Conkling.

OHIO.

R. P. Ranny, *President*, Cleveland.
Rutherford B. Hayes, Fremont.
E. F. Noyes, Cincinnati.
O. W. McCook, Steubenville.

Barnabas Burns, Mansfield.
F. F. Green, *Secretary and Superintendent*, Cleveland.

OREGON.

M. Wilkins, Willamette Forks.
C. P. Burkhardt, Albany.
E. R. Geary, Albany.
W. J. Halsey, Portland.

M. P. Deady, Portland.
Thomas Condon, Forest Grove.
S. G. Reed, Portland.

PENNSYLVANIA.

Morton McMichael, Philadelphia.
 Andrew G. Curtin, Bellefonte.
 John H. Shoenburger, Pittsburg.

George Scott, Catawissa.
 Foster W. Mitchell, Franklin.

RHODE ISLAND.

John Gorham, Providence.
 Hon. Henry Lippitt, Providence.
 James Y. Smith, Providence.

William Goddard, Providence.
 Rowland Hazard, Providence.
 John R. Bartlett, Providence.

TENNESSEE.

J. M. Safford, Davidson Co.
 C. C. Giers, Davidson Co.
 J. T. Wilder, Hamilton Co.

Joseph Barbieri, Shelby.
 George E. Purvis, Nashville.
 S. B. Lowe, Chattanooga.

TEXAS.

J. E. Preston, Marlin.
 E. L. Gregg, Rush.

S. J. Adams, Dallas.

UTAH.

Wm. Jennings, *President*, Salt Lake City.
 Henry C. Goodspeed, *Secretary*, Salt Lake City.

John T. Caine, Salt Lake City.
 Joseph R. Walker, Salt Lake City.
 George S. Prescott, Salt Lake City.

VERMONT.

Joseph S. Patterson.
 P. P. Pitkin.

VIRGINIA.

John D. Imboden, *President*, Richmond.
 Marshall Parks, Norfolk.
 Samuel J. Moffit, Harrisonburg.

G. J. Wharton, Pulaski Co.
 Edward M. Pace, Danville.

WASHINGTON TERRITORY.

James S. Lawson, Olympia.
 Charles E. P. Wood, Port Discovery.
 Edward S. Kearney, Walla Walla.

Henri M. Chase, Walla Walla.
 Phillip Ritz, Walla Walla.

WEST VIRGINIA.

O. C. Dewey, Wheeling.
 G. W. Franzheim, Wheeling.
 C. N. Beall, Bethany.

Thomas Maslin, Moorsfield.
 I. P. Hale, Charleston.

WISCONSIN.

J. B. Parkinson, *President*, Madison.
 Eli Stilson, Oshkosh.
 Adolph Meinecke, Milwaukee.
 J. I. Case, Racine.

T. C. Pound, Chippewa Falls.
 F. Kuehn, *Treasurer*, Manitowoc.
 W. W. Field, *Secretary*, Madison.

WYOMING.

J. R. Whitehead, Cheyenne.
 Stephen W. Downey, Laramie City.
 James France, Rawlins.

John Foshier, South Pass City.
 J. H. Pyachou, Laramie City.
 J. A. Van Carter, Fort Bridger.

SYSTEM OF AWARDS.

THE Centennial Commission have substituted for the international juries employed at previous International Exhibitions, a system of awards which provided :

That awards shall be based upon written reports attested by the signatures of their authors.

That the judges should be selected for their known qualifications and character, and should be experts in the departments to which they are respectively assigned; the foreign members of this body being appointed by the Commission of each country and in conformity with the distribution and allotment to each; the judges from the United States by the Centennial Commission.

That judges should be reimbursed for their personal expenses.

That reports and awards should be based upon inherent and comparative merit; the elements of merit being held to include considerations relating to originality, invention, discovery, utility, quality, skill, workmanship, fitness for the purposes intended, adaptation to public wants, economy, and cost.

That each report should be delivered to the Centennial Commission as soon as completed, for final award and publication.

That awards should be finally decreed by the United States Centennial Commission, in compliance with the Act of Congress, and should consist of a diploma with a uniform Bronze Medal, and a special report of the judges on the subject of the Award.

That each exhibitor shall have the right to produce and publish the report awarded to him, but the United States Centennial Commission reserves the right to publish and dispose of all reports in the manner it thinks best for public information, and also to embody and distribute the reports as records of the Exhibition.

JUDGES OF AWARDS.

GROUP I.

Minerals, Mining, and Metallurgy, including the Machinery.—(Classes 100 to 108 of the classification. See page 27.)

Metals, Metallurgical Products and Processes.—(Classes 110 to 115.)

Machines, Tools, and Apparatus of Mining and Metallurgy.—(Classes 300 to 307, and 512.)

Mine Engineering—Models, Maps, and Sections.—(Classes 120, 121.)

AMERICAN.

Alexander L. Holley, 56 Broadway, N.Y.
 Prof. T. Sterry Hunt, LL.D., F.R.S.,
 St. James Hotel, Boston, Mass.
 Prof. J. M. Safford, Nashville, Tennessee.
 S. B. Axtell, Santa Fé, New Mexico.
 John Fritz, Bethlehem, Pa.
 Austin Savage, Boise City, Idaho.
 W. S. Keyes, M. E., Eureka, Nevada.
 Prof. Frederick Prime, jr., Easton, Pa.
 Matthew Addy, Cincinnati, Ohio.
 Prof. G. C. Broadhead, Pleasant Hill,
 Missouri.

FOREIGN.

Mr. Isaac Lowthian Bell, M.P., F.R.S.,
 Great Britain.
 Mr. Ernst F. Althans, Breslau, Germany.
 Mr. Louis Simonin, Paris, France.
 Mr. F. Valtou, France.
 Mr. R. Akerman, Stockholm, Sweden.
 Mr. Achille Jottrand, Belgium.
 M. L. Nicholsky, Russia.
 Mr. Nicholas Jossa, Russia.
 Dr. Th. Kjerulf, Christiania, Norway.
 Don Daniel de Cortazar, Spain.

GROUP II.

Pottery, Glass, Artificial Stone, etc.—(Classes 206 to 216, and 219, 203, 517, 518.)

AMERICAN.

Gen. Q. A. Gillmore, U. S. A., care D.
 Van Nostrand, New York.
 Arthur Beckwith, 134 Fifth Avenue, New
 York.
 Prof. E. T. Cox, Indianapolis, Indiana.
 Gen. Hector Tyndale, Philadelphia, Pa.
 Henry Wurtz, Hoboken, N. J.

FOREIGN.

R. H. Soden Smith, M.A., Great Bri-
 tain.
 Dr. G. Seelhorst, Nuremberg, Germany.
 M. Ch. de Busay, Paris, France.
 Adolf E. Nordenskiöld, Sweden.
 Mr. K. Notomi, Japan.

GROUP III.

Chemistry and Pharmacy, including the Apparatus.—(Classes 200 to 203, and 274, 508, 509, and 699.)

AMERICAN.

Prof. C. A. Joy, Columbia College, New
 York.
 Prof. F. A. Genth, University of Pennsyl-
 vania, Philadelphia, Pa.
 Prof. J. Lawrence Smith, Louisville, Ky.
 Prof. C. F. Chandler, Columbia College,
 New York.
 Prof. J. W. Mallet, University of Vir-
 ginia, Charlottesville, Virginia.

FOREIGN.

Dr. William Odling, F.R.S., Great Bri-
 tain.
 Dr. Rudolf von Wagner, Würzburg,
 Germany.
 M. J. F. Kuhlmann Lille, France.
 Mr. Prosper De Wilde, Belgium.
 Mr. Emanuel Paterno, Italy.

GROUP IV.

Animal and Vegetable Products, and the Machinery for their Preparation.—(Classes 650 to 661.)

AMERICAN.

Prof. W. C. Kerr, Raleigh, N. C.
L. B. Arnold, Rochester, N. Y.
Col. J. F. Tobias, 1705 Locust Street,
Philadelphia, Pa.
Col. John Bradford, Tallahassee, Fla.
Guido Marx, Toledo, Ohio.
Ryland T. Brown, Indianapolis, Ind.
W. S. Green, Milford, Wis.

FOREIGN.

Mr. Edouard Martell, France.
Don Edward Loring, Malaga, Spain.
Dr. Nicolau J. Moreira, Brazil.
M. Jayme Batalha Reis, Portugal.
Mr. Ekeda Kenzo, Japan.
E. Oldendorff, Argentine Confederation.
Dr. E. H. Von Baumhauer, Netherlands.
H. G. Joly, M. P., Canada.
Julius Wegeler, Coblenz, Germany.
G. F. Secchi de Casali, Italy.
Prof. Thomas R. Segelche, Denmark.
Rustem Effendi, Turkey.

GROUP V.

Fish and Fish Products—Apparatus of Fishing, etc.—(Classes 640 to 648.)

AMERICAN.

Prof. S. F. Baird, Smithsonian Institution, Washington.
T. B. Ferguson, Baltimore, Md.

FOREIGN.

Joachim Andersen, Norway.

GROUP VI.

Timber, Worked Lumber, Parts of Buildings, Forestry.—(Classes 600 to 607.)

AMERICAN.

Prof. Wm. H. Brewer, New Haven, Conn.
J. M. Bennett, Weston, Lewis Co., W. Va.
Prof. J. S. Newberry, Cleveland, Ohio, or
Columbia College, N. Y.

FOREIGN.

John R. West, Chili.
M. Rodrigues de Vasconcellos, Portugal.
Hon. W. Skead, Canada.
Dr. José de Saldanha, Brazil.

GROUP VII.

Furniture, Upholstery, Wooden Ware, Baskets, etc.—(Classes 217, 220, 221, 225, 226, 286, 289, 290.)

AMERICAN.

Addison Boyden, Boston, Mass.
Chauncey Wiltse, Omaha, Neb.
Robert Mitchell, Cincinnati, O.

FOREIGN.

Le Marquis de Rochambeau, France.
Mr. Theo. Snyers, Belgium.
Francis Thonet, Austria.

GROUP VIII.

Cotton, Linen, and other Fabrics, including the Materials and the Machinery.—(Classes 228, 229 to 234, 521, 523, 524, 665, 666.)

AMERICAN.

Edward Atkinson, Boston, Mass.
Hugh Waddell, jr., Savannah, Ga.
Col. Ed. Richardson, Jackson, Miss.
A. D. Lockwood, Providence, R. I.
Chas. H. Wolff, Cincinnati, Ohio.
Samuel Webber, C. E., Manchester, N. H.
George O. Baker, Selma, Ala.

FOREIGN.

Mr. Isaac Watts, Great Britain.
Mr. W. W. Hulse, C. E., Great Britain.
Consul Gustav Gebhard, Germany.
Albert Daninos, Turkey.
Don Alvaro de la Gandara, Spain.
Major A. Goldy, Switzerland.
Prof. Gustave Herrmann, Germany.
Prof. Giuseppe Dassi, Italy.

GROUP IX.

Wool and Silk Fabrics, including the Materials and the Machinery. Woven and Felted Goods of Wool, and Mixtures of Wool.—(Classes 235 to 241, 522, and 667.)

Silk and Silk Fabrics, and Mixtures in which Silk is the Predominating Material.—(Classes 242 to 249 and 520.)

AMERICAN.

John L. Hayes, Cambridge, Mass.
Hon. Elliot C. Cowdin, New York.
Chas. Le Boutillier, Philadelphia, Pa.
Chas. J. Ellis, 714 Market St., Philadelphia, Pa.
J. D. Lang, Vassalboro', Me.

FOREIGN.

Mr. Henry Mitchell, Great Britain.
Dr. Max Weigert, Germany.
Mr. Chatel, France.
Carl Arnberg, Sweden.
Mr. Hayami Kenzo, Japan.
Mr. John G. Neeser, Switzerland.
August Behner, Egypt.
Theodore Bochner, Austria.

GROUP X.

Clothing, Furs, India Rubber Goods, Ornaments, and Fancy Articles. (Exclusive of Leather Boots and Shoes.)—(Classes 250 to 257 and 288.)
Caoutchouc and Gutta Percha Industry.—(Class 285.)

AMERICAN.

Prof. W. H. Chandler, Ph.D., F.C.S.,
 Lehigh University, Bethlehem, Pa.
 Wm. O. Luthicum, New York City.
 Benj. F. Britton, New York City.
 Dr. George Hewston, San Francisco, Cal.
 Prof. E. N. Horsford, Cambridge, Mass.

FOREIGN.

Mr. Dietz-Monnin, France.
 Mr. Modest Kittary, Russia.
 Mr. Edward Kanitz, Austria.
 Mr. M. P. Empey, Canada.

GROUP XI.

Jewelry, Watches, Silverware, Bronzes, etc.—(Class 253.)

AMERICAN.

Martin P. Kennard, Boston, Mass.
 Peter Gottesleben, Denver, Col.

FOREIGN.

G. H. Heap, Tunis.
 M. Roulleaux du Gage, France.

GROUP XII.

Leather and Manufactures of Leather, including Boots, Shoes, Trunks, etc.—(Classes 532 and 533.)

AMERICAN.

Gov. F. H. Pierpont, Fairmount, Marion Co.,
 W. Va.
 John Cummings, Boston, Mass.
 Thomas Miles, Philadelphia, Pa.
 J. P. Postles, Wilmington, Del.

FOREIGN.**GROUP XIII.**

Paper Industry, Stationery, Printing, and Book Making.—(Classes 258 to 264.)
Machines and Apparatus for Type Setting, Printing, Stamping, Embossing, and for making Books and Paper Working.—(Classes 525 and 540 to 547.)

AMERICAN.

James M. Willcox, Ph.D., Glen Mills, Pa.,
 1722 Spruce St., Phila.
 C. O. Chapin, Springfield, Mass.
 Wm. Faxon, Hartford, Conn.
 Edward Conly, Cincinnati, Ohio.
 H. T. Brian, Government Printing Office,
 Washington.

FOREIGN.

Sir Sidney H. Waterlow, Bart., M.P., Great
 Britain.
 G. W. Seitz, Germany.

GROUP XIV.

Apparatus of Heating, Lighting, Ventilation, Water Supply, and Drainage.—(Classes 222 to 224.)

AMERICAN.

C. C. Cox, M.D., LL.D., Washington, D. C.
 Asel Ames, jr., M.D., Wakefield, Mass.

FOREIGN.**GROUP XV.**

Builders' Hardware, Edge Tools, Cutlery, etc.—(Classes 280 to 284.)

AMERICAN.

Charles Staples, Portland, Me.
 Daniel Steinmetz, Philadelphia.
 George L. Reed, Clearfield, Pa.
 Gen John D. Imboden, Richmond, Va.

FOREIGN.

Hon. J. Bain, Lord Provost of Glasgow, Great
 Britain.
 Mr. D. McHardy, Great Britain.
 Mr. Diefenbach, Germany.

GROUP XVI.

Military and Sporting Arms, Weapons, Apparatus of Hunting, Explosives, etc.—(Classes 204, 205, and 265 to 270.)

AMERICAN.

Col. S. C. Lyford, U.S.A. (Chairman Govern-
 ment Board, etc).
 Gen. H. L. Abbott, U.S.A., Willets' Point,
 N. Y.
 George A. Hamilton, St. Paul, Minn.

FOREIGN.

Major Wm. H. Noble, R.A., Great Britain.
 Capt. Comm't of Artillerie Lesne, Belgium.
 Capt. L. F. Saldanha da Gama, Brazil.

GROUP XVII.**Carriages, Vehicles, and Accessories.**—(Classes 292 to 296.)**AMERICAN.**

Thos. Goddard, Boston, Mass., 134 State St.
B. F. Morse, Augusta, Me.

FOREIGN.

Mr. Guiet, France.
Mr. Duffus, Canada.

GROUP XVIII.**Railway Plant, Rolling Stock, and Apparatus, Road Engines.**—(Classes 570 to 577.)**AMERICAN.**

Robert E. Ricker, Elizabeth, N. J.
Gen. T. A. Morris, Indianapolis, Ind.
Felician Slataper, Pittsburg, Pa.

FOREIGN.

Capt. Douglas Galton, R.E., C.B., F.R.S.,
Great Britain.
Mr. Ernest Pontzen, Austria.
Mr. E. E. A. Schaar, Belgium.

GROUP XIX.**Vessels and Articles of Transportation**—(not included in other groups).—(Classes 587 to 544, and 590 to 597.)**AMERICAN.**

Isaac Newton, New York.
J. W. Griffith, Portsmouth, N. H.
H. C. Goodspeed, Salt Lake City, Utah.

FOREIGN.

Col. F. H. Rich, R.E., Great Britain.

GROUP XX.**Motors, Hydraulic and Pneumatic Apparatus, etc.**—(Classes 550 to 555, and 560 to 568.)**AMERICAN.**

C. T. Porter, Newark, N. J.
Joseph Belknap, New York.
James Moore, Philadelphia.
Horatio Allen, South Orange—"Homewood,"
N. J.
Chas. E. Emery, 7 Warren Street, New York.

FOREIGN.

Mr. W. H. Barlow, C.E., Great Britain.
Prof. Reuleaux, Germany.
Nicholas Petroff, Russia.
Emil Brugsch, Egypt.

GROUP XXI.**Machine Tools—Wood, Metal, and Stone.**—(Classes 510, 511, and 514 to 516.)**AMERICAN.**

Irving M. Scott, Union Iron Works, San Francisco, Cal.
George H. Blelock, Springfield, Mass.
W. F. Durfee, Wisconsin (at 56 Broadway,
New York).
Prof. John A. Anderson, President Kansas
State Agricultural College, Manhattan, Kan.

FOREIGN.

Mr. John Anderson, LL.D., C.E., Great
Britain.
M. Le Commandant F. Perier, France.
Mr. C. A. Angstrom, Sweden.
Mr. Auguste Gobert (fils), Belgium.
Mr. Felix Reiser, Austria.

GROUP XXII.**Machines, Apparatus, and Implements used in Sewing and Making Clothing, Lace, Ornamental Objects, Pins, etc.**—(Classes 530, 531, and 534 to 537.)**AMERICAN.**

George W. Gregory, Boston, Mass.
Edward H. Knight, Patent Office, Wash-
ington, D. C.
L. D. F. Poore, Springfield, Dakota.

FOREIGN.

Mr. Fred. A. Paget, C.E., Great Britain.

GROUP XXIII.**Agricultural Machines, Implements of Agriculture, Horticulture, and Gardening.**—(Classes 670 to 675, and 680 to 683.)**Tillage and General Management.**—(Classes 690 to 692, and 715, 716.)**Garden Tools, Accessories of Gardening.**—(Classes 720 to 722.)**Garden Designing, Construction, and Management.**—(Classes 710, and 731 to 733.)**AMERICAN.**

Hon. John P. Reynolds, Chicago, Ill.
James S. Grinnell, Washington, D. C.
Geo. E. Waring, jr., Newport, R. I.
James Bruce, Corvallis, Oregon.

FOREIGN.

Mr. John Coleman, Great Britain.
Dr. Jose de Saldanha, Brazil.
Don Fermin Rosillo, Spain.

GROUP XXIV.**Instruments and Apparatus of Hygiene, Medicine, Surgery, Prothesis, etc.**—(Classes 272, 273, and 275 to 278.)**AMERICAN.**

C. B. White, M.D., New Orleans, La.
J. H. Thompson, A.M., M.D., Washington,
D. C.

FOREIGN.

Dr. William Roth, Germany.
Dr. Ernst Fleischel, Austria.

GROUP XXV.

Instruments of Precision, Research, Experiment, and Illustration, including Telegraphy and Music.—(Classes 320 to 327.)

AMERICAN.

Prof. Joseph Henry, LL.D., Secretary of Smithsonian Institution, Washington, D. C.
 Prof. F. A. P. Barnard, S.T.D., LL.D., Columbia College, N. Y.
 Prof. J. E. Hilgard, Washington, D. C.
 Prof. J. C. Watson, Ann Arbor, Mich.
 General Henry K. Oliver, Salem, Mass.
 Geo. F. Bristow, New York.

FOREIGN.

Sir William Thomson, LL.D., D.C.L., F.R.S., Great Britain.
 Jul. Schiedmayer, Germany.
 Mr. E. Levasseur, France.
 P. F. Kupka, Austria.
 Edw. Favre Perret, Switzerland.

GROUP XXVI.

Architecture and Engineering. (For Agricultural Engineering, see Class 680.) (For Mine Engineering, see Group I.) **Architecture.**—(Classes 341, 342.) **Engineering.**—(Classes 330 to 333, and 335.)

AMERICAN.

James B. Eads, C.E., South Pass Jetty Works, 122 Common Street, New Orleans, La.
 General Wm. B. Franklin, Hartford, Conn.
 Richard M. Hunt, 49 West Thirty-fifth Street, New York.

FOREIGN.

Sir John Hawkshaw, C.E., F.R.S., Great Britain.
 Mr. Lavoignac, France.
 J. M. da Silva Continho, Brazil.
 J. G. W. Fynje, Netherlands.
 Lourenço Maheiro, M.E., Portugal.

GROUP XXVII.

Plastic and Graphic Art Sculpture.—(Classes 400 to 405.)
Painting.—(Classes 410 to 413.)
Engraving and Lithography.—(Classes 420 to 424.)
Photography.—(Classes 430 to 432.)
Industrial and Architectural Designs, Models, and Decorations.—(Classes 440 to 443.) (Classes 450 to 454.)
Decoration with Ceramic and Vitreous Materials; Mosaic and Inlaid Work.

AMERICAN.

Frank Hill Smith, Boston, Mass.
 James L. Claghorn, Philadelphia, Pa.
 Prof. S. F. Weir, New Haven, Conn.
 Donald G. Mitchell, New Haven, Conn.
 Geo. Ward Nichols, Cincinnati, Ohio.
 Prof. Henry Draper, Medical College, New York City.

FOREIGN.

Mr. Charles West Cope, R.A., Great Britain.
 Mr. Peter Graham, Great Britain.
 Carl Schlesinger, Germany.
 Dr. H. Vogel, Germany.
 Mr. Emile T. Saintain, France.
 Fritz L. Dardel, Sweden.
 P. N. Arbo, Norway.
 Count of Donadis, Spain.
 Mr. Tantardini, Italy.
 Guglielmo de Sanctis, Italy.
 Mr. Carl Costenoble, Austria.
 Prof. V. Dahlerup, Denmark.
 J. E. van Heemskerck van Beest, Netherlands.

GROUP XXVIII.

Educational Systems, Methods, and Libraries.—(Classes 300 to 306.)
Institutions and Organizations.—(Classes 310 to 313.)

AMERICAN.

Hon. Andrew D. White, LL.D., President of Cornell University, Ithaca, N. Y.
 D. C. Gilman, LL.D., President of St. John's Hopkins University, Baltimore, Md.
 Hon. J. M. Gregory, LL.D., Pres. Illinois Industrial Union, Champaign, Ill.
 Hon. J. W. Hoyt, M.D., LL.D., Madison, Wis.

FOREIGN.

Sir Charles Reed, Great Britain.
 Mr. René Fourat, France.
 Col. John Marin, Spain.
 Prof. Dr. Otto Martin Torzell, Sweden.

BUILDINGS AND SPECIAL EXHIBITS WITHIN THE EXHIBITION GROUNDS.

[NOTE.—The buildings bear the numbers prefixed to them in this table, being the numbers adopted by the Centennial Guide Book Co. (Limited).]

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* Metallurgical exhibit of France, page 48.

† Metallurgical exhibit of Liberia, page 88.

† Countries marked thus, have Agricultural exhibits which are installed in the Main Building, and catalogued in Part I.

† A portion of the Chemical exhibit of Brazil, page 75.

No. 152. AGRICULTURAL HALL.

Size, parallelogram, 820 by 540 feet.

Architect, JAMES H. WINDRIM, Philadelphia.

Contractor, PHILIP QUIGLEY, Wilmington, Del.

Wrought iron furnished by ALLISON & SONS, Philadelphia.

Erectors, BELL BROTHERS.

THE Agricultural Exhibition Building stands north of Horticultural Hall, on the eastern side of Belmont avenue. A novel combination of materials is illustrated in its construction. It consists of a long nave crossed by three transepts, all composed of Howe truss arches of Gothic form. The four courts inclosed between the nave and transepts, as also the four spaces at the corners of the building, having the nave and transepts for their sides, are roofed in and form spaces for exhibits. The building covers an area of above ten acres. Stock yards for the exhibition of horses, cattle, sheep, swine, poultry, etc., are in the vicinity of the exhibition grounds.

The contract was made July 26th, 1875, and the building was begun in September 1875, and finished in April, 1876. It cost \$260,000.

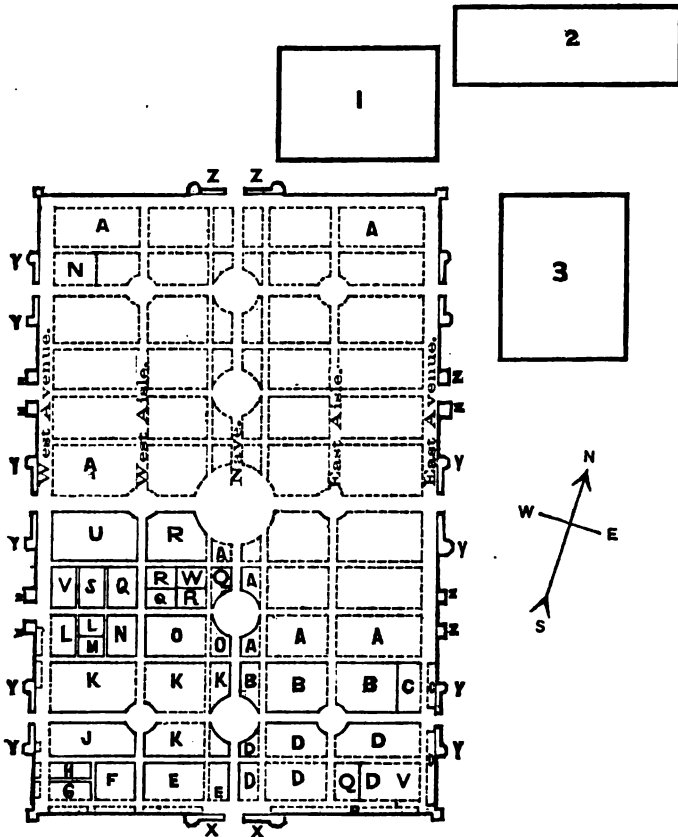
KEY TO THE NOTATION.

THE location of objects in the Agricultural Building is shown by a letter and figure, indicating the nearest column of the building. The letters—A, B, C, to T—designate the successive ranges of columns, proceeding eastward from the western wall across the width of the building; the figures, the number of the column in each range, counting northwardly from the southern wall, the entire length of the building, from 1 to 28. Thus C 5 is the column in the third range from the west, and the fifth from the southern end of the building. The northeasternmost column is T 28.

The class of the classification (see pages 12-14) to which each exhibit belongs is indicated by the small figures at the end of the line.

AGRICULTURAL HALL.

Scale, 225 ft. to 1 in.



A United States.
B Canada.
C Liberia.
D England.
E Germany.
F Austria.
G Japan.
H Venezuela.
J Netherlands.

K France.
L Sweden.
M Denmark.
N Norway.
O Brazil.
P Belgium.
Q Portugal.
R Spain and Phil. Islands.
S Argentine Republic.

U Russia.
V Italy.
W Mexico.
X Dept. of Public Comfort.
Y Water-closets.
Z Offices.
1. Wagon Building.
2. Brewers' Building.
3. Pomological Building.

Total Length, 540 ft. Width, 820 ft. Height, 75 ft.

SYNOPSIS OF THE CLASSIFICATION.

LOCATION.	DEPARTMENTS.	CLASSES.	GROUPS.
MAIN BUILDING.	I. MINING AND METALLURGY.	100—109 110—119 120—129	Minerals, Ores, Stone, Mining Products. Metallurgical Products. Mining Engineering.
	II. MANUFACTURES.	200—205 206—216 217—227 228—234 235—241 242—249 250—257 258—264 265—271 272—279 280—284 285—291 292—296	Chemical Manufactures. Ceramics, Pottery, Porcelain, Glass, etc. Furniture, etc. Yarns and Woven Goods of Vegetable or Mineral Materials. Woven and Felted Goods of Wool, etc. Silk and Silk Fabrics. Clothing, Jewelry, etc. Paper, Blank Books, Stationery. Weapons, etc. Medicine, Surgery, Prothesis. Hardware, Edge Tools, Cutlery, and Metallic Products. Fabrics of Vegetable, Animal, or Mineral Materials. Carriages, Vehicles, and Accessories.
	III. EDUCATION AND SCIENCE	300—309 310—319 320—329 330—339 340—349	Educational Systems, Methods, and Libraries. Institutions and Organizations. Scientific and Philosophical Instruments and Methods. Engineering, Architecture, Maps, etc. Physical, Social, and Moral Condition of Man.
ART GALLERY.	IV. ART.	400—409 410—419 420—429 430—439 440—449 450—459	Sculpture. Painting. Engraving and Lithography. Photography. Industrial and Architectural Designs, etc. Ceramic Decorations, Mosaics, etc.
MACHINERY BUILDING.	V. MACHINERY.	500—509 510—519 520—529 530—539 540—549 550—559 560—569 570—579 580—589 590—599	Machines, Tools, etc., of Mining, Chemistry, etc. Machines and Tools for working Metal, Wood, and Stone. Machines and Implements of Spinning, Weaving, etc. Machines, etc., used in Sewing, Making Clothing, etc. Machines for Printing, Making Books, Paper Working, etc. Motors, Power Generators, etc. Hydraulic and Pneumatic Apparatus. Railway Plant, Rolling Stock, etc. Machinery used in Preparing Agricultural Products. Aerial, Pneumatic, and Water Transportation. Machinery, and Apparatus, especially adapted to the requirements of the Exhibition.
AGRICULTURAL BUILDING.	VI. AGRICULTURE.	600—609 610—619 620—629 630—639 640—649 650—662 665—669 670—679 680—689 690—699	Arboriculture and Forest Products. Pomology. Agricultural Products. Land Animals. Marine Animals, Fish Culture, and Apparatus. Animal and Vegetable Products. Textile Substances of Vegetable or Animal origin. Machines, Implements, and Processes of Manufacture. Agricultural Engineering and Administration. Tillage and General Management.
HORTICULTURAL BUILDING.	VII. HORTICULTURE.	700—709 710—719 720—729 730—739	Ornamental Trees, Shrubs, and Flowers. Hot Houses, Conservatories, Graperies. Garden Tools, Accessories of Gardening. Garden Designing, Construction, and Management.

CLASSIFICATION.

DEPARTMENT VI.—AGRICULTURE.

ARBORICULTURE AND FOREST PRODUCTS.

- CLASS 600.—Timber and trunks of trees, entire or in transverse or truncated sections, with specimens of barks, leaves, flowers, seed vessels, and seed.
Masts, spars, knees, longitudinal sections of trees, railway ties, ship timber, lumber roughly sawn; as planks, shingles, lath, and staves.
Timber and lumber prepared in various ways to resist decay and combustion; as by injection of salts of copper and zinc.
- CLASS 601.—Ornamental woods used in decorating and for furniture; as veneers of mahogany, rosewood, ebony, walnut, maple, and madrona.
- CLASS 602.—Dyewoods, barks, and galls for coloring and tanning.
- CLASS 603.—Gums, resins, caoutchouc, gutta percha, vegetable wax.
- CLASS 604.—Lichens, mosses, fungi, pulu, ferns.
- CLASS 605.—Seeds, nuts, etc., for food and ornamental purposes.
- CLASS 606.—Forestry.—Illustrations of the art of planting, managing, and protecting forests. Statistics.
- CLASS 607.—Fruit trees and shrubs.

POMOLOGY.

- CLASS 610.—Fruits of temperate and semi-tropical regions; as apples, pears, quinces, peaches, nectarines, apricots, plums, grapes, cherries, strawberries, and melons.
- CLASS 611.—Tropical fruits and nuts, oranges, bananas, plantains, lemons, pine-apples, pomegranates, figs, cocoanuts.

AGRICULTURAL PRODUCTS.

- CLASS 620.—Cereals, grasses, and forage plants.
- CLASS 621.—Leguminous plants and esculent vegetables.
- CLASS 622.—Roots and tubers.
- CLASS 623.—Tobacco, hops, tea, coffee, spices, condiments, herbs.
- CLASS 624.—Seeds and seed vessels.

LAND ANIMALS.

- CLASS 630.—Horses, asses, mules.
- CLASS 631.—Horned cattle.
- CLASS 632.—Sheep.
- CLASS 633.—Goats, alpaca, llama, camel.
- CLASS 634.—Swine.
- CLASS 635.—Poultry and birds.
- CLASS 636.—Dogs and cats.
- CLASS 637.—Wild animals.
- CLASS 638.—Insects, useful and injurious. Honey bees, cochineal, silk-worms.

MARINE ANIMALS, FISH CULTURE, AND APPARATUS.

- CLASS 640.**—Marine mammals.—Seals, cetaceans, etc., specimens living in aquaria, or stuffed, salted, preserved in alcohol, or otherwise.
- CLASS 641.**—Fishes, living or preserved.
- CLASS 642.**—Pickled fish, and parts of fish used for food.
- CLASS 643.**—Crustaceans, echinoderms, beche de mer.
- CLASS 644.**—Mollusks, oysters, clams, etc., used for food.
- CLASS 645.**—Shells, corals, and pearls.
- CLASS 646.**—Whalebone, shagreen, fish-glue, isinglass, sounds, fish-oil.
- CLASS 647.**—Instruments and apparatus of fishing.—Nets, baskets, hooks, and other apparatus used in catching fish.
- CLASS 648.**—Fish culture.—Aquaria, hatching pools, vessels for transporting roe and spawn, and other apparatus used in fish breeding, culture, or preservation.

ANIMAL AND VEGETABLE PRODUCTS.

(Used as food or as materials.)

- CLASS 650.**—Sponges, seaweed, and other growths used for food or in the arts.
- CLASS 651.**—The dairy.—Milk, cream, butter, cheese.
- CLASS 652.**—Hides, furs, and leather, tallow, oil, and lard, ivory, bone, horn, glue.
- CLASS 653.**—Eggs, feathers, down.
- CLASS 654.**—Honey and wax.
- CLASS 655.**—Animal perfumes; as musk, civet, ambergris.
- CLASS 656.**—Preserved meats, vegetables, and fruits. Dried, or in cans or jars. Meat and vegetable extracts.
- CLASS 657.**—Flour; crushed and ground cereals, decorticated grains.
- CLASS 658.**—Starch and similar products.
- CLASS 659.**—Sugar and syrups.
- CLASS 660.**—Wines, alcohol, and malt liquors.
- CLASS 661.**—Bread, biscuits, crackers, cakes, confectionery, cocoa, chocolate, etc.
- CLASS 662.**—Vegetable oils, oil cake.

TEXTILE SUBSTANCES OF VEGETABLE OR ANIMAL ORIGIN.

- CLASS 665.**—Cotton on the stem, in the boll, ginned, and baled.
- CLASS 666.**—Hemp, flax, jute, ramie, etc., in primitive forms and in all stages of preparation for spinning.
- CLASS 667.**—Wool in the fleece, carded, and in bales.
- CLASS 668.**—Silk in the cocoon and reeled.
- CLASS 669.**—Hair, bristles.

MACHINES, IMPLEMENTS, AND PROCESSES OF MANUFACTURE.

- CLASS 670.**—Tillage.—Manual implements, spades, hoes, rakes. Animal power machinery, plows, cultivators, horse-hoes, clod-crushers, rollers, harrows. Steam power machinery, plows, breakers, harrows, cultivators.
- CLASS 671.**—Planting.—Manual implements, corn-planters and hand-drills. Animal power machinery, grain and manure drills, corn and cotton planters. Steam power machinery, grain and manure drills.
- CLASS 672.**—Harvesting.—Manual implements; grain-cradles, sickles, reaping-hooks. Animal power machinery, reapers and headers. Mowers, tedders, rakes, hay elevators, and hay loaders. Potato diggers.
- CLASS 673.**—Preparatory to marketing.—Thrashers, clover-hullers, corn-shellers, winnowers, hay, cotton, flax, jute, ramie, wine, oil, and sugar making apparatus. Cleaners and smutters. Horse powers.

CLASS 674.—Applicable to farm economy.—Portable and stationary engines, chaffers, hay and feed cutters, slicers, pulpers, corn mills, farm boilers and steamers, incubators, edged tools, mills, meat choppers.

CLASS 675.—Dairy fittings and appliances.—Churns for hand and power, butter-workers, cans and pails, cheese-presses, vats, and apparatus, ice-cream freezers, cedar-ware.

AGRICULTURAL ENGINEERING AND ADMINISTRATION.

CLASS 680.—Laying out and improving farms.—Clearing (stump extractors), construction of roads, draining, irrigating, models of fences, gates, drains, out-falls, dams, embankments, irrigating machinery, stack building and thatching.

CLASS 681.—Commercial fertilizers, phosphatic, ammoniacal, calcareous, etc.

CLASS 682.—Transportation.—Wagons, carts, sleds, harness, yokes, traction engines, and apparatus for road making and excavating.

CLASS 683.—Farm buildings.—Models and drawings of farm houses and tenements, barns, stables, hop-houses, fruit-driers, ice-houses, windmills, granaries, barracks, apiaries, cocooneries, aviaries, abattoirs, and dairies.

TILLAGE AND GENERAL MANAGEMENT.

CLASS 690.—Systems of planting and cultivation.

CLASS 691.—Systems of draining and application of manures.

CLASS 692.—Systems of breeding and stock feeding, training.

CLASS 693.—Veterinary surgery and appliances.

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THE FINEST CIGAR
 (At six for 25 cents)
 IN THE UNITED STATES,
THE "AROMA,"
 FROM
 THE UNITED STATES CIGAR MANUFACTORY,
 Office, S. W. cor. Fifteenth and Vine Sts.,
 PHILADELPHIA.

MAGIC LANTERNS.
 STEREO-PANOPTICONS-ARTOPTICONS. 10000 SLIDES ALWAYS ON HAND.
 ILLUSTRATING EVERY SECTION OF THE GLOBE; AND ALL THE ARTS AND
 SCIENCES. THE ARTOPTICON IS THE BEST LANTERN, WITH A
 BRILLIANT COAL OIL LAMP, SUITABLE FOR HOME, SUNDAY SCHOOLS
 AND LECTURERS. ILLUSTRATED CATALOGUES FREE.
 W. Y. McALLISTER 728 CHESTNUT ST. PHILA. PA.

TWENTY-EIGHTH ANNUAL REPORT OF
THE PENN MUTUAL LIFE INSURANCE CO.

OFFICE, 921 CHESTNUT STREET, PHILADELPHIA.

ASSETS, JAN. 1st, 1876.

United States bonds, Philadelphia and other stocks and loans, -	\$1,770,477 50
Mortgages and ground rents upon property appraised at \$5,334,500, all first liens.	1,971,308 84
Real estate owned by Co., -	349,186 53
Premium notes and loans secured by collateral, -	853,620 23
Cash on hand and in trust companies, -	291,916 62
Scrip dividends held by Co., -	213,030 00
Balance in hand of agents, -	27,953 48
All other securities, -	236,846 14
	\$5,904,329 24

LIABILITIES.

Losses reported, but not yet due, -	\$50,920 00
Reserve at 4 per cent interest, required to insure outstanding risks, -	4,553,118 00
Scrip yet outstanding, -	113,030 00
	4,756,438 00
Surplus to policy holders, 4 per cent. basis, -	747,891 24
Surplus to policy holders, 4½ per cent. basis, -	2,083,091 24
Total number of policies issued in 1875, -	2,023
Policies in force Jan. 1, 1876, -	9,545
Amount at risk, -	\$26,589,363 00

SAMUEL C. HUEY, President.
 H. S. STEPHENS, Second Vice-President.
 HENRY AUSTIE, Secretary.

SAMUEL E. STOKES, Vice-President.
 JAMES WEIR MASON, Actuary.



HASELTINE GALLERIES,
 1125 and 1127 Chestnut St., Philadelphia.

DEPT. I.—MINING AND METALLURGY.

UNITED STATES.

Minerals, Ores.

Minerals, Ores, Stone, Mining Products.

- 1 Cambria Iron & Steel Co., Johnstown, Pa. W 66.
- a Carborate, fossil, and hematite ores from Johnstown, Frankstown, Marklesburg, Yellow Creek, Henrietta, and Springfield mines; specular, magnetic, red hematite, Lake Superior, and Lake Champlain ores; manganiferous Iron Mountain ores. 100
- b B, C, D, and E coal from Johnstown and Bennington mines; Belgian oven and pit coke. 101
- c Lime and ganister from near Hollidaysburg, Henrietta, and Ganister mines. 103
- 2 Wharton, Joseph, Camden, N. J.—Nickel ores. T 63. 100
- 3 Sharswood, Wm., Philadelphia, Pa.—T 70. 100
- a Magnetic iron ore from the Moratuc Furnace mines, Danbury, N. C.; ores and minerals from North Carolina. 100
- b Coal from North Carolina. 101
- c Marble from North Carolina. 102
- d Steatite, agalmatolite, etc. from North Carolina. 104
- 4 Hatch, John, San Francisco, Cal.—Minerals of the Pacific states and territories, Mexico, Central and South America, China, Japan, etc. T 67. 100
- 5 Barton, Chas., Philadelphia, Pa.—Ores from "Blazing Star" silver mine, Colorado. T 71. 100
- 6 Adams, J. Howe, Philadelphia, Pa.—Ore from "Blue Jacket" silver mine, Montana district, Colorado. T 71. 100
- 7 Benton, Caroline C., Philadelphia, Pa.—Iron ores from St. Lawrence and Lewis counties, N. Y. T 67. 100
- 8 Foote, A. E., M.D., 3725 Lancaster avenue, Philadelphia, Pa.—Collection of minerals; elementary collection of minerals for students illustrating principal species; all grand divisions in Dana; every chemical element; every system of crystallization; trimorphism, 100 specimens, averaging four square inches, mostly crystallized, printed label of species, composition, locality attached—\$10.00; crystallized amazon stone, feldspar, quartz, Brookite, rutile rosettes, perovskite, borotetranite (new mineral, Koenig), schorloite, samarskite, tellurides, copper, hexagonal graphite, embolite, aegirite, ozarkite, chlorastrolite, wavelite, peganite, etc. T 71. 100
- 9 Cleveland Rolling Mill Co., Cleveland, Ohio.—Ores. T 60. 100
- 11 Wyoming Historical & Geological Society, Wilkesbarre, Pa.—Fossils from the anthracite coal measures of Wyoming Valley, Pa. T 70. 100
- 12 Cook, Isaac, St. Louis, Mo.—Lead ores from Washington county, Mo. T 68. 100
- 13 Port Henry Iron Ore Co., J. B. Brinsmade, Treasurer, 56 Broadway, New York, N. Y.—Magnetic iron ores, "Twenty-one," puddling, and furnace ore; "Fisher" Bessemer ore. T 71. 100
- 14 Witherbees, Sherman, & Co., Port Henry, Essex County, N. Y.—Old bed puddling and furnace ore, and new bed Bessemer ore. T 71. 100
- 15 Black Band Iron Co., Marietta, O.—Black band, red hematite, and other iron ores. V 63. 100
- 16 Brown & Co., Wayne Iron & Steel Works, Pittsburg, Pa.—Ores. T 62. 100
- 17 Lucy Furnace Co., Pittsburg, Pa.—Iron ores. T 66. 100
- 18 Providence Franklin Society, Providence, R. I.—Minerals and geological specimens from Rhode Island. T 70. 100
- 19 Lombard, Thos. C., New York, N. Y.—Galena from Tudor mine, Hastings county, Ont. T 71. 100
- 20 Hussey & Howe Mining Co., Plattsburg, N. Y.—Blue magnetic iron ore (marite); black magnetic iron ore. T 69. 100
- 21 Alexander, John S., Philadelphia, Pa.—Collection of minerals. P 68. 100
- 22 Passaic Zinc Co., Passaic, N. J.—Zinc ores. T 63. 100
- 23 Magnetite Iron Co., Philadelphia, Pa.—Bessemer ores; minerals from Carter county, Tenn. T 69. 100
- 24 Crab Orchard Iron Co., Philadelphia, Pa.—Magnetic Bessemer iron ores from Crab Orchard, Tenn. T 69. 100
- 25 Herr, Jos. C., Philadelphia, Pa.—Hematite iron ores, manganese, and baryta from French Broad River, Cocke county, Tenn. T 69. 100
- 26 Davis, O. W., Jr., Bangor, Maine.—Katahdin ores (limonite). T 69. 100
- 26a Fleming, F. N. & J. S., Goochland C. H., Va.—T 68. 100
- a Minerals, especially gold ores. 100
- b Mineral waters. 107
- 27 Thomas Iron Co., Hokendauqua, Pa.—Iron ore. T 64. 100
- 28 Lehigh Zinc Co., Bethlehem, Pa.—Zinc ores and minerals from zinc mines. T 64. 100

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Minerals, Ores.

- 29 Virginia Mineral Bureau, Alexandria, Va.—Collection of minerals of Virginia and West Virginia. X 62. 100
- 30 Stockbridge Iron Co., New Bedford, Mass.—Iron ore from West Stockbridge and Richmond, Mass. T 70. 100
- 31 Dexter & Co., New York, N. Y.—Mica from North Carolina. T 72. 100
- 32 Minong Mining Co., Detroit, Mich.—Native copper, etc. V 67. 100
- 33 Shalter, R. M., Carrick Furnace, Franklin county, Pa.—Iron ore. T 63. 100
- 34 Shelby Iron Co., Shelby Iron Works, Ala.—Iron ores. T 71. 100
- 35 Rockhill Iron & Coal Co., Philadelphia, Pa.—T 72 and Y 56.
a Iron ores. 100
b Semi-anthracite coal; coke. 101
- 36 Tecumseh Iron Co., Tecumseh, Ala. Willard Warner, President and Manager; A. E. Buck, Treasurer, Atlanta, Ga.—Pig iron, iron ore, charcoal, limestone. T 70. 100
- 36a Smith, J. C., Chicago, Ill.—Minerals of Jo Daviess county. V 72. 100
- 37 New River Railroad, Mining, & Manufacturing Co. of Virginia, Philadelphia, Pa.—Iron ores and other minerals. T 50. 100
- 37a Cosgriff, A., Tilly Foster Iron Mines, N. Y.—Magnetic iron ore. Y 62. 100
- 37b South & North Alabama Railroad, Montgomery, Ala.—Y 60 and T, 57.
a Iron ore and minerals. 100
b Coal and coke. 101
- 38 Lackawanna Iron & Coal Co., Scranton, Pa.—Iron ores. T 63. 100
- 39 Carpenter, Charles, Kelley's Island, Ohio.—Geological rocks. V 63. 100
- 40 Lake Superior Iron Co., Marquette county, Mich.—Iron ore. T 70. 100
- 41 Kentucky Geological Survey.—Collection illustrating the geology and mineral resources of Kentucky. X 65. 100
- 42 Allen, Oliver, Mumford, N. Y.—Petritified wood, leaves, ferns, etc., found on his premises. T 72. 100
- 43 Vesuvius Furnace, Etna Iron Works, Ironton, Ohio.—Iron ore. T 68. 100
- 44 Etna Furnace, Etna Iron Co., Hanging Rock, Ohio.—Iron ore. T 68. 100
- 45 Blanche Furnace, Etna Iron Works, Ironton, Ohio.—Iron ores. T 68. 100
- 46 Hecla Iron & Mining Co., John Campbell, President, Ironton, O.—Iron ores. T 68. 100
- 47 Monitor Furnace Co., Ironton, O.—Iron ores. T 68. 100
- 48 Grant Furnace, W. D. Kelley & Sons, Ironton, O.—Iron ores. T 68. 100
- 49 Center Furnace, W. D. Kelley & Sons, Ironton, O.—Iron ores. T 68. 100
- 49a Pennsylvania Geological Survey (by John B. Pease).—Scientific collection of rocks, minerals, models, and maps illustrating the geology of Pennsylvania. V 70. 100
- 50 Howard Furnace, Charcoal Iron Co., Ironton, O.—Iron ores. T 68. 100
- 50a Benton, Lewis F., Antwerp, N. Y.—Lead ore. T 70. 100
- 51 Buckhora Furnace, Charcoal Iron Co., Ironton, O.—Iron ores. T 68. 100
- 52 Olive Furnace, Campbell, McGugin, & Co., Ironton, O.—Iron ores. T 68. 100
- 53 Lawrence Furnace Co., Ironton, O.—Iron ores. T 68. 100
- 53a Ward, L. B., Niles, O.—V 61 to 63.
a Iron ore. 100
b Coal. 101
- 54 Pine Grove Furnace, Means, Kyle, & Co., Hanging Rock, O.—Iron ores. T 68. 100
- 55 Ohio Furnace, Means, Kyle, & Co., Hanging Rock, O.—Iron ores. T 68. 100
- 56 Washington Furnace, Union Iron Co., Portsmouth, O.—Iron ores. T 68. 100
- 56a Chaffin, Staples, & Co., Richmond, Va.—Ores. T 56. 100
- 57 Scioto Furnace, L. C. Robinson & Co., Portsmouth, O.—Iron ores. T 68. 100
- 58 Bloom Furnace, John Paul & Co., Portsmouth, O.—Iron ores. T 68. 100
- 59 Clinton Furnace, W. I. Bell, Wheelersburg, O.—Iron ores. T 68. 100
- 59a Selma & Alabama Railroad, Montgomery, Ala.—Y 60.
a Iron ore. 100
b Section of coal-beds. 101
- 60 Buckeye Furnace Co., Jackson, O.—Iron ores. T 68. 100
- 61 Cambria Furnace, D. Lewis & Co., Samsonville, O.—Iron ores. T 68. 100
- 62 Jackson Furnace, L. P. N. Smith's Heirs, Sciotoville, O.—Iron ores. T 68. 100
- 62a Wallis, Jno. G., Fulton, Ark.—Sulphate of antimony and argentiferous galena. N 55. 100
- 63 Jefferson Furnace Co., Oak Hill, O.—Iron ores. T 68. 100
- 64 Orange Furnace, Orange Iron Co., Jackson, O.—Iron ores. T 68. 100
- 65 Star Furnace Co., Jackson, O.—Iron ores. T 68. 100
- 66 Huron Furnace, Huron Iron Co., Jackson, O.—Iron ores. T 68. 100
- 67 Tropic Furnace Co., Jackson, O.—Iron ores. T 68. 100
- 68 Globe Furnace, Globe Iron Co., Jackson, O.—Iron ores. T 68. 100
- 69 Fulton Furnace, Globe Iron Co., Jackson, O.—Iron ores. T 68. 100
- 69a Liking Iron Co., Newark, O.—V 63.
a Iron ore. 100
b Coal. 101
c Flux and slag. 103
- 70 Wellston Twin Furnaces, Wellston Coal & Iron Co., Wellston, O.—Iron ores. T 68. 100
- 70a Hannibal & St. Joseph Railroad, Hannibal, Mo.—Minerals, etc. from the line of the road. V 65. 100
- 70b St. Louis & Iron Mountain Railroad, St. Louis, Mo.—Minerals, etc. from the line of the road. T 60. 100
- 71 Lincoln Furnace, I. M. McGhee's Estate, Rud's Mills, O.—Iron ores. T 68. 100
- 72 Richland Furnace Co., Richland P. O., O.—Iron ores. T 68. 100

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

Minerals, Ores, Stone.

- 73 Eagle Furnace, L. C. Damarin & Co., Rud's Mills, O.—Iron ores. T 68. 100
- 74 Hope Furnace, L. C. Damarin & Co., Portsmouth, O.—Iron ores. T 68. 100
- 75 Hamden Furnace, L. C. Damarin & Co., Portsmouth, O.—Iron ores. T 68. 100
- 75a Marietta, Pittsburg, & Cleveland Railway, Marietta, O.—Minerals and ores. V 63. 100
- 76 Vinton Furnace, Bancroft, Rader, & Co., Vinton Station, O.—Iron ores. 100
- 77 Keystone Furnace Co., Portsmouth, O.—Iron ores. T 68. 100
- 78 Monroe Furnace, Union Iron Co., Portsmouth, O.—Iron ores. T 68. 100
- 79 Latrobe Furnace, Bundy & Cobb, Berlin Cross Roads, O.—Iron ores. T 68. 100
- 79a Barnes, Lewis, Philadelphia, Pa.—Manganiferous iron ore, from Warren county, N. J. T 50. 100
- 80 Logan Furnace Co., Logan county, O.—Iron ores. T 68. 100
- 81 Union Furnace, Brooks & Hueston, Haydensville, O.—Iron ores. T 68. 100
- 82 Mount Savage Furnace, Lexington & Carter county Mining & Manufacturing Co., Lexington, Ky.—Iron ores. T 68. 100
- 83 Buffalo Furnace, Culbertson, Earhart, & Co., Greenupsburg, Ky.—Iron ores. T 68. 100
- 84 Hunnewell Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Iron ores. T 68. 100
- 85 Pennsylvania Furnace, Eastern Kentucky Railway Co., Riverton, Ky.—Iron ores. T 68. 100
- 86 Charlotte Furnace Co., Riverton, Ky.—Iron ores. T 68. 100
- 87 Laurel Furnace, Robt. Scott & Co., Riverton, Ky.—Iron ores. T 68. 100
- 88 Gallia Furnace, Norton, Campbell, & Co., Portsmouth, O.—Iron ores. T 68. 100
- 88a Iowa, State of.—Minerals, ores, etc. of Iowa. V 59. 100
- 89 Raccoon Furnace, Raccoon Mining & Manufacturing Co., Riverton, Ky.—Iron ores. T 68. 100
- 90 Tygert's Valley Mining Co., Riverton, Ky.—Section of iron ore. T 68. 100
- 90a Chester Iron Co., Chester, N. J.—Iron ore. T 64. 100
- 91 Bellefonte Furnace, Means, Russell, & Means, Ashland, Ky.—Iron ores. T 68. 100
- 92 Buena Vista Furnace, Means & Co., Ashland, Ky.—Iron ores. T 68. 100
- 93 Trigg Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Iron ores. T 68. 100
- 93a Lowe, S. B., Chattanooga, Tenn.—Ores. X 63. 100
- 94 Center Furnace, D. Hillman & Sons, Empire Iron Works, Ky.—Iron ores. T 68. 100
- 98 Hanging Rock Iron Region, Iron-ton, O.—Iron ores. T 68. 100
- 97 Traber & Aubery, Cincinnati, O.—Iron ores from twenty-five states and territories. T 68. 100
- 98 Borden, William W., New Providence, Ind.—Fossils of Clark county, Ind., and stone. X 60. 100
- 99 Cooper, Hewitt, & Co., New York, N. Y. T 66. 100
a Iron ores. 100
b Fuels. 101
- 100 Ohio Coal Co., Marietta, O.—V 63. 100
a Coal. 100
b Coke. 101
- 101 Rhodes & Co., Cleveland, O.—V 6a to 63. 100
a Lake Superior iron ores. 100
b Massillon, Ohio, coals. 101
- 102 Poplar Creek Mineral Railroad Co., Philadelphia, Pa.—T 69. 100
a Iron ores, etc., from Anderson county, Tenn. 100
b Coal from Anderson county, Tenn. 101
- 103 Durham Iron Co., Riegelsville, Pa.—T 64. 100
a Ores. 100
b Fuel. 101
- 104 Glendon Iron Co., Easton, Pa.—T 64. 100
a Iron ores. 100
b Fuel. 101
- 105 Mahoning Valley Centennial Association, Youngstown, O.—V 63. 100
a Ores. 100
b Coal. 101
c Limestone. 103
- 106 Bye, E. Mortimer, Wilmington, Del. 100
a Iron ore. (Titaniferous magnetic.) *Chrome ore.* (Rock and sand.) 100
b Maryland "verde antique" marble (serpentine), various shades of green, handsomely blended; takes a brilliant polish, does not fade or weather, and is adapted for all kinds of ornamental work. T 70. 102
- 107 Northampton Furnace, worked by the Bethlehem Iron Co., Bethlehem, Pa.—T 64. 100
a Iron ores. 100
b Fuel. 101
- 108 Lehigh Iron Co., Allentown, Pa.—T 64. 100
a Iron ore. 100
b Coal. 101
- 109 Emaus Iron Co., Allentown, Pa.—T 64. 100
a Iron ore. 100
b Fuel. 101
- 111 Allentown Rolling Mill Co., Allentown, Pa.—T 64. 100
a Ores. 100
b Fuel. 101
- 112 Carbon Iron Co., Parryville, Pa.—T 64. 100
a Iron ore. 100
b Fuel. 101
- 113 Philadelphia and Reading Coal and Iron Co., Philadelphia, Pa.—T 72 and Y 56. 100
a Iron ores. 100
b Coals for smelting and steam purposes. 101
- 114 Grand Tower Mining, Manufacturing, and Transportation Co., Grand Tower, Ill.—T 68. 100
a Ores. 100
b Fuel. 101

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Minerals, Ores, Stone.

115 Ironton Furnace Iron & Steel Co., Ironton, O.—T 68.		129 Crane Iron Co., Catasauqua, Pa. —T 64.	
a Iron ores.	100	a Hematite and magnetic iron ores.	100
b Bituminous coal.	101	b Fuel.	101
116 Belfont Furnace, Belfont Iron Works, Ironton, O.—T 68.		c Limestone.	103
a Iron ores.	100	130a Chattanooga Mineral District, Chattanooga, Tenn.—X 63.	
b Bituminous coals.	101	a Iron and copper ores; gold quartz.	100
117 Ophir Furnace Co., Jackson, O.—T 68.		b Coal.	101
a Iron ores.	100	c Marble.	102
b Jackson county stone coal.	101	131 Lehigh Valley Iron Co., Copley, Pa. —T 64.	
118 Norton Iron Works, Ashland, Ky. —T 68.		a Hematite and magnetic ore.	100
a Iron ores.	100	b Fuel.	101
b Coals and coke.	101	c Limestone.	103
119 Ashland Furnace, Lexington & Big Sandy Railroad Co., Ashland, Ky. —T 68.		132 Ohlton Coal Co., Youngstown, O. —V 63.	
a Iron ores.	100	a Black band ore mixed with coal.	100
b Coals.	101	b Mineral ridge coal.	101
120 Powel, Robert Hare, & Co., 424 Walnut street, Philadelphia, Pa.—X 54.		132a Glasgow & Port Washington Iron & Coal Co., Port Washington, O.—V 61 and W 64.	
a Iron ores.	100	a Ores.	100
b Semi-bituminous and gas coals, from the Powell estate, Pennsylvania.	101	b Coal.	101
121 Union Iron Co. of Buffalo, Buffalo, N. Y.—T 64 and U 60 outside.		133 Alice Furnace, Etna Iron Works, Hanging Rock, Ohio.—T 68.	
a Iron ores.	100	a Iron ores.	100
b Limestone.	103	b Bituminous coal and coke.	101
122 Woodstock Iron Co., Anniston, Ala.—T 63.		c Limestone.	103
a Iron and manganese ores.	100	133a Coleraine Iron Co., Northampton county, Pa.—T 64.	
b Limestone.	103	a Iron ore.	100
123 Saucun Iron Co., Hellertown, Pa. —T 64.		b Coal.	101
a Hematite and magnetic ore.	100	134 Hanging Rock Iron Region Fur- naces, Charles Campbell, Commissioner, Ironton, O.—T 69.	
b Limestone.	103	a Iron ores.	100
123a Selma, Rome, & Dalton Rail- road (by S. W. Baird), Cincinnati, O.—X 64.		b Cinders, bituminous coals.	101
a Copper and iron ores.	100	c Limestone.	103
b Coal.	101	d Fire clay.	104
c Slate, marble, and limestone.	102	135 Tuscarawas Coal & Iron Co., Cleve- land, O.—T 71.	
d Fire clay.	104	a Iron ores.	100
124 Andrews, Hitchcock, & Co., Cleve- land, O.—V 61 to 64.		b Coal.	101
a Lake Superior iron ores.	100	c Limestone.	103
b Brier Hill coal.	101	d Sand, fire clay.	104
c Limestone.	103	136 Mount Vernon Furnace, Hiram Campbell & Sons, Ironton, O.—T 68.	
125 Duncan, John W., Philadelphia, Pa.—T 72.		a Iron ores.	100
a Iron ores.	100	b Bituminous coals.	101
b Clays.	104	c Limestone.	103
126 Peru Steel & Iron Co., Clinton- ville, N. Y.—T 63.		d Fire clay.	104
a Iron ore.	100	137 Milton Furnace & Coal Co., Wells- ton, O.—T 68.	
b Graphite ore.	105	a Iron ores.	100
127 Thomas, W. H. B., Mount Holly, N. J.—T 68.		b Coals.	101
a Minerals.	100	c Limestone.	103
b Marls for fertilizing purposes; mineral waters from New Jersey.	107	d Fire clay.	104
127a Brooke, E. & G., Birdsboro', Pa. —T 67.		138 Huntingdon & Broad Top Rail- road Co., Philadelphia, Pa.—V 56.	
a Magnetic and hematite iron ores.	100	a Iron ores.	100
b Anthracite coal.	101	b Coal.	101
128 Myers, A. J., Shenandoah Alum Springs, Va.—T 67.		c Limestones.	103
a Minerals.	100	d Fire clays.	104
b Mineral spring waters, chalybeate, iron, and sulphur waters.	107	139 State of Wisconsin.—V 60.	
128a Andover Iron Co., Phillipsburg, N. J.—T 64.		a Minerals, soils, etc.	100
a Iron ores.	100	b Building stone.	102
b Coal.	101	c Sands, gravel.	104
c Limestone and slags.	103	140 State of Ohio (by F. W. Green).—V 61 to 63.	
		a Minerals, ores.	100
		b Stone.	102
		c Clay, etc.	104

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

Minerals, Ores, Coal.

- 141 State of New Jersey (by Geo. H. Cook, State Geologist, New Brunswick, N. J.).—T 70.**
a Iron, zinc, and copper ores; minerals, geological suite. 100
b Building stones. 102
c Clays and sands. 104
d Fertilizers. 107
- 142 State of Indiana (by E. T. Cox, State Geologist).—V 58.**
a Hydrated brown oxide iron ores. 100
b Bituminous and cannel coal from various mines. 101
c Marble of various colors, oolitic building stone, limestone, sandstone, limestone flags, hydraulic stone. 102
d Hydraulic cement, caustic lime. 103
e Fire, white porcelain, and potters' clay; sand. 104
- 143 State of Michigan (Jay A. Hubbell, Houghton, Mich., Superintendent of Mineral Department).—V 67.**
a Minerals, ores, geological collections, etc. 100
b Bituminous and cannel coal. 101
c Hewn, sawed, and polished building stone, marbles, and slates. 102
d Lime and cement. 103
e Clays and silex for glass manufacturers; sandstone, etc. 104
f Mineral waters, natural brines, gypsum, marls, etc. 107
- 144 State of Delaware (by J. P. Comegys, Dover, Del.).—V 55.**
a Iron ore. 100
b Building stone. 102
c Clays. 104
d Natural woods. 600
e Fruits. 610
f Cereals. 620
g Peas, beans, potatoes, turnips. 621
- 145 State of Missouri (collective exhibit, by Thos. Allen, President State Board Centennial Managers, St. Louis, Mo.).—V 65 and T 60.**
a Iron, lead, zinc, copper, and nickel ores, barytes, feldspar, and soils. 100
b Coal. 101
c Stone. 102
d Clays, sand, ochres, and kaolin. 104
e Tripoli. 106
f Peanuts. 605
g Wheat, rye, oats, barley, and corn. 620
i White beans and black-eyed peas. 621
j Millet. 624
k Cotton. 665
l Flax and hemp. 666
m Wool. 667
n Silk. 668
- 146 Cochran, John M., & Co., Bradford, Pa.—Connellsville bituminous coal and coke. T 56.** 101
- 147 Foster Coal Co., Youngstown, O.—Coal. V 63.** 101
- 148 Kittaning Coal Co., 125 South Fourth street, Philadelphia, Pa.—Clearfield bituminous coal, for steam and manufacturing purposes. Y 56 and T 72.** 101
- 149 Westmoreland Coal Co., 230 South Third street, Philadelphia, Pa.—Bituminous coal from the Pittsburg seam, for manufacture of gas and iron, and for locomotive fuel. Y 58.** 101
- 149a Warwick, John G., Massillon, O.—Coal from Warmington mines. V 63.** 101
- 150 Penna Gas Coal Co., Westmoreland county, Pa.—Section of bituminous coal-vein. T 72 and Y 56.** 101
- 150a Sparks, Westwater, & Co., Columbus, O.—Coal from Muskingum county. V 63.** 101
- 151 Van Wickle, Stout, & Co., New York, N. Y.—Anthracite coal from Ebervale, Pa. W 53.** 101
- 152 Kyle Coal Co., Youngstown, O.—Coal. V 63.** 101
- 153 Linderman, G. B., Bethlehem, Pa.—Anthracite coal. T 64.** 101
- 154 Newton, Jotham, New York, N. Y.—Composition fuel made of coal-dust. T 57.** 101
- 155 Union Mining Co., of Alleghany county, Md.—Coal. X 58.** 101
- 155a Stoner, Hitchman, & Co., Mt. Pleasant, Pa.—Coal and coke. X 57.** 100
- 156 Anthracite Fuel Co., Rondout, N. Y.—Pressed anthracite coal. Y 54.** 101
- 156a Hutchinson, A. A., & Bro., Pittsburgh, Pa.—Coke. X 56.** 101
- 157 Hickory Coal Co., Pottsville, Pa.—Samples of coal. W 55.** 101
- 158 Harleigh Coal Co., Philadelphia, Pa.—Samples of coal. W 55.** 101
- 158a Lawton, Burnett, & Co., East Palestine, Ohio.—Bituminous coal, from Columbia county, O. V 61 to 63.** 101
- 158b Draper, John W., Pottsville, Pa.—Anthracite coal. W 56.** 101
- 159 Excelsior Coal Mining Co., Philadelphia, Pa.—Samples of coal. W 55.** 101
- 160 Garretson, Theodore, Philadelphia, Pa.—Coal from the Girard colliery. W 55.** 101
- 161 Wadsworth Coal Co., Akron, O.—Coal from Medina county, O. V 63.** 101
- 162 Blauvelt, Jas. C., Marietta, O.—Bituminous coal from Marietta Run, Ohio. V 61 to 64.** 101
- 162a Hurd Coal & Iron Co., Columbus, O.—Bituminous coal from Perry county, O. V 63.** 101
- 163 Lexington & Carter county Mining & Manufacturing Co., Lexington, Ky.—Section of bituminous coal. T 65.** 101
- 163a Church Hill Coal Co., Youngstown, O.—Coal from Briar Hill. V 63.** 101
- 163b Burton, J. P., Massillon, O.—Coal. V 63.** 101
- 163c Andrews & Hitchcock, Youngstown, O.—Briar Hill block coal. V 61 to 63.** 101
- 163d Huddell & Seltsinger, Philadelphia, Pa.—Anthracite coal from Draper's colliery. W 58.** 101
- 164 Keys, John, Brockwayville, Pa.—Lump of bituminous coal. Y 56.** 101
- 164a Suydam, M. A. & Co., Columbus, O.—Coal from Straitsville Mining Company. V 63.** 101
- 165 Eastern Kentucky Railway, River-ton, Ky.—Sections of cannel and bituminous coals. T 68.** 101
- 165a Hayden, P., Columbus, O.—Coal from Hocking county. V 63.** 101
- 165b Steubenville Coal Company, Steubenville, O.—Bituminous coal. V 63.** 101

Coal, Stone.

- 185c Pomeroy Coal Company, Pomeroy, O.—Coal. V 63. 101
- 186a Brooks, W. B., & Son, Hocking county, O.—Coal. V 63. 101
- 186c Newark Coal Company, Newark, O.—Cannel coal. V 63. 101
- 188 Dysart & Co., Philadelphia, Pa.—Bituminous white ash coal from Cambria county, Pa. Y 57. 101
- 188a Franklin Coal Company, Akron, O.—Coal from Summit county. V 63. 101
- 186b Fitch, E. A., Columbus, O.—Coal from Athens county. V 63. 101
- 186c Howells, Anthony, Massillon, O.—Coal from Pigeon Run. V 63. 101
- 187 Kimes, J. B., & Co., Philadelphia, Pa.—Slate mantels, house decorations, building material. T 50. 102
- 188 Williams Marble & Slate Mantel Co., Philadelphia, Pa.—Marble and marbleized slate mantels, etc. T 48. 102
- 189 Wilson & Miller, Philadelphia, Pa.—Marbleized slate mantels, etc.; plain slate work. T 51. 102
- 171 Hayes, Coulter, & Co., Philadelphia, Pa.—Slate mantels with grates. T 59. 102
- 172 Dougherty, E. D., Philadelphia, Pa.—Blocks of Dougherty marble of Tennessee, rough and polished; pedestals, slabs, etc. The Dougherty marble is used in the U. S. Capitol, Treasury, South Carolina State House, and over one hundred and fifty other buildings, public and private, in all parts of the country. Operated since 1853. Quarry in Doughertyville, Hawkins county, Tenn. T 49. 102
- 172a Peninsula Stone Co., Peninsula, O.—Building stone. V 63. 102
- 173 Columbian Marble Co., Rutland, Vt.—Marble wainscoting, pedestal, tiling, etc. T 54. 102
- 174 Van Gunden, Young, & Drumm, Philadelphia, Pa.—Vermont marble tablets and rustic monument; Italian marble. T 47. 102
- 175 Innis, G. S., Warden of Ohio Penitentiary, Columbus, O.—Limestone from State quarries at Columbus, O. V 61 to 64. 102
- 175a Field, F. K., Philadelphia, Pa.—North River, Pennsylvania, and Virginia blue stone. T 53. 102
- 176 Gurney, H. D., St. Paul, Minn.—Minnesota granite—red, white, and blue. T 50. 102
- 177 Forest City Stone Co., Cleveland, O.—Sawed stone flagging. T 54. 102
- 178 Chase, M. K., Bluehill, Maine.—Cut granite pedestal. (Nave.) 102
- 179 Martin, H. F., Allentown, Pa.—Slate mantels and blackboards, school slates, etc. T 51. 102
- 180 Chandler, C. H., Brownville, Maine.—Roofing slate. T 51. 102
- 181 Allen, James T., & Co., Philadelphia, Pa.—Scagliola and Marezzo marble for interior decoration. T 54. 102
- 182 Fauchere, A. L., & Co., New York, N. Y.—Marble mantels, etc. T 50. 102
- 183 Williams, Chas., St. Louis, Mo.—Tennessee, Italian, and Missouri marble work; jewel box. T 53. 102
- 183a Barker, H., & Bro., Philadelphia, Pa.—Pedestal of Massachusetts granite. (Nave.) 102
- 184 Denton, Drake W., Office, 17 North Front street, Philadelphia, Pa.—Excelsior fire and water-proof slate roofing, and flax waste-composition batting. All orders promptly attended to. T 56. 102
- 185 Tillson, Davis, Rockland, Maine.—Plain, polished, and ornamental granite work. T 51. 102
- 185a Finnigan, M., Cincinnati, O.—Buena Vista stone. V 61 to 63. 102
- 185b Fish, W., & Co., Columbus, O.—Stone from Portsmouth and Black Lick, Ohio. W 63. 102
- 185c Finch, Pruyn, & Co., Glens Falls, N. Y.—Block of marble. T 51. 102
- 186 Maine Slate Co., Skowhegan, Maine.—Roofing slate, dark, rich, lustrous, unfading color, unequaled elasticity, toughness, and strength, wonderful rift and smoothness of surface. T. H. Dinmore, *Business Manager*. T 53. 102
- 187 Chapman Slate Co., Bethlehem, Pa.—Roofing slate, flagging, stairways, blackboards, posts, door and window sills, mantels. T 64. 102
- 188 Lehigh Slate Co., Slatington, Pa.—Roofing and school slate, mantels, blackboards, bath tubs; bureau, table, and washstand tops. T 64. 102
- 188a Hinsdale, Doyle, & Co., New York, Granite monuments. T 72. 102
- 188b Fisher & Bird, New York, N. Y.—Marble mantels. T 50. 102
- 188c Howell, C. M., Lancaster, Pa.—Marble monuments. V 60. 102
- 189 Allentown Slate Mantel Co., Allentown, Pa.—Slate mantels. T 51. 102
- 189a Hinton, David, Xenia, O.—Building limestone. V 61 to 64. 102
- 189b Caguire, Frank, Chicago, Ill.—Antique vase of limestone. T 53. 102
- 190 Carpenter & Raymond, Cambridge City, Ind.—Monumental work. T 71. 102
- 191 McDonald, Alexander, Cambridge, Mass.—The Centennial Cascade, a rustic rockwork surmounted by a cross (granite from Glen quarries, Mason, N. H., carved at Cambridge, Mass.), exhibiting fine quality of this granite and its capabilities for carved and polished work. N 56 and T 67. 102
- 191a Boaler, Marcus, Dayton, O.—Limestone. V 61 to 63. 102
- 191b Ballard & Galloway, Finley, O.—V 61 to 63. 102
a Building limestone. 102
b Lime, and water lime rock. 103
- 192 Bodwell Granite Co., Rockland, Maine.—Granite samples. T 72. 102
- 193 Brinton, Joseph H., Thornbury P. O., Pa.—Serpentine stone from quarries in Chester county, Pa. T 55. 102
- 194 Scorgie, Wight, & Co., Cambridge, Mass.—Polished granite fountain. U 48. 102

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

Stone.

- 195 Struthers, W., & Sons, Philadelphia, Pa.—Mantels, font, group of birds in Caen stone; alto-relief in statuary, marble, sandstone, font, specimens of foreign marbles and native plaster; models for public buildings; specimens of native granites, marbles, and sandstones. T 35. 102
- 196 Pennsylvania Marble Co., Philadelphia, Pa.—Black marble mantel, book, and tiles. T 51. 102
- 197 Brown, E. F., Commandant Soldiers' Home, Dayton, O.—Stone from quarries on grounds of National Soldiers' Home. V 61 to 63. 102
- 197a Barker, Henry, & Sons, Quincy, Mass.—Quincy granite pedestal. (New.) 102
- 198 Rutland Marble Co., West Rutland, Vt.—Wrought and unwrought marble. T 59. 102
- 199 Maine Red Granite Co., Red Beach, Maine (G. G. McGlashan, superintendent).—Specimen block of red granite from top sheet of quarry. T 55. 102
- 199a Graves Brothers, Birmingham, O.—V 63. 102
a Building stone. 102
b Grindstones. 106
- 200 Columbia Slate Co., Slatington, Pa.—Manufactured Washington vein roofing slate. T 54. 102
- 201 Martin, F. O., St. George, Maine.—Block of dressed granite. T 64. 102
- 202 Wells, Chas. B., Marietta, O.—Sandstone for building purposes. T 64. 102
- 203 St. Johnsbury Granite Co., St. Johnsbury, Vt.—Granite monument and tablet.—T 56. 102
- 204 Merrill, Adams H., Williamsburgh, Maine.—Roofing slate. T 50. 102
- 207 Clemons, C. H., Sandusky, O.—Limestone. V 61 to 63. 102
- 208 Concord Granite Co., Quincy, Mass.—Granite pedestal. N 48. 102
- 209 Sheldons & Slason, West Rutland, Vt.—Pedestal of statuary and blue mottled marble. V 54. 102
- 210 Davis, I. J., Newark, O.—White and red sandstone. V 61 to 63. 102
- 211 McNally, William G., Cleveland, O.—Coat-of-arms of Ohio, carved from Berea stone. (Ohio State Building.) 102
- 211a Portland Brown Stone Quarries, Portland, Conn.—Stoops and doorways of Connecticut brown stone. (Outside.) 102
- 211b King, T. H., Trumansburg, N. Y.—Flag stones. (Outside.) 102
- 211c Stotler, D. C., Piqua, O.—Building limestone. V 61 to 64. 102
- 211d Strom & De Planque, New York, N. Y.—Marble table top and mantelpiece. T 51. 102
- 211e Fase, Lewis, Covington, O.—V 61 to 64. 102
a Building limestone. 102
b Lime. 103
- 211f North Pittsford Marble Company, Pittsford, Vt.—Marble monuments, pedestal, and design case. T 56. 102
- 211g Paul, John, & Co., Massillon, O.—Stone for building and glass manufacturing. V 61 to 63. 102
- 211h Myers, Uhl, & Co., Cleveland, O.—Marble mantel and grate. (Ohio State Building.) 102
- 212 Thompson, Wm. S., Springfield, Ohio.—V 63. 102
a Stone. 102
b Lime. 103
- 212a Traber, Jacob, Cincinnati, O.—Limestone. V 61 to 64. 102
- 212b Mueller, John M., Cincinnati, O.—Buena Vista stone. V 61 to 63. 102
- 212c Richey, Morris S., Waverly, O.—Building stone. V 61 to 64. 102
- 212d Singer & Talcott Stone Company, Chicago, Ill.—Illinois limestone dressed by machinery. (At spring S. E. of Horticultural Hall.) 102
- 212e St. Johnsbury Granite Company, St. Johnsbury, Vt.—Granite monument and tablet. T 57. 102
- 212f Richmond Marble Company, of Vermont, Philadelphia, Pa.—White marble pedestal. T 57. 102
- 213 Amherst Stone Co., Cleveland, O.—V 63. 102
a Blocks of sandstone. 102
b Grindstones. 106
- 214 Warthorst & Co., Massillon, O.—V 63 and T 61. 102
a Blocks of sandstone. 102
b Grindstones. 106
- 214a Berea Stone Company, Berea, O.—V 63. 102
a Building stone and flagging. 102
b Grindstones, and scythe stones. 106
- 215 Philadelphia & Reading Railroad Co., Philadelphia, Pa.—T 72 and V 56. 102
a Building stone. 102
b Limestone. 103
- 216 Worthington & Sons, North Amherst, Ohio.—T 56 and V 63. 102
a Amherst building stone. 102
b Grindstones, etc., from quarries at Amherst and Lake Huron, Mich. 106
- 216a Burlington Manufacturing Co., Burlington, Vt.—Marble tiling.—T 56. 102
- 217 Williams, R. L., Middle Granville, N. Y.—T 51. 102
a Vermont and New York roofing slate. 102
b Car coupler. 576

COLLECTIVE EXHIBIT OF BUILDING STONES USED IN THE OHIO STATE BUILDING.

- 218 Hoffman, A. O., Thompson, Wm., and others, Springfield, O. 102
- 219 Berea Stone Co., Berea, O. 102
- 220 Hurst, I. R., Cleveland, O. 102
- 221 Ford, O. D., Cleveland, O. 102
- 222 Halderman, L., & Son, Cleveland, O. 102
- 223 Wagner, John, Cleveland, O. 102
- 224 Amherst Stone Co., Cleveland, O. 102
- 225 Black River Stone Co., Cleveland, O. 102
- 226 Paul, John, & Co., Massillon, O. 102
- 227 Wilson & Hughes Stone Co., Cleveland, O. 102
- 228 Clough Stone Co., Amherst, O. 102
- 229 Worthington & Sons, Amherst, O. 102

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

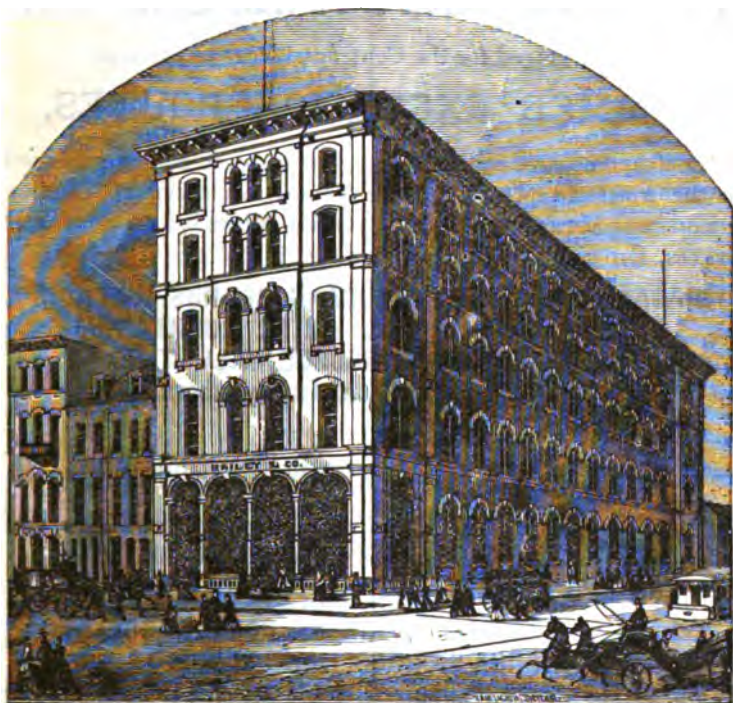
Minerals, Stone.

- 230 Ohio Stone Co., Cleveland, O.
 231 McDermott, J., & Co., Cleveland, O.
 232 Coshocton Stone Co., Coshocton, O.
 233 Stitt, Price, & Co., Columbus, O.
 234 Finnegan, M., Cincinnati, O.
 235 Finnegan, J. H., Cincinnati, O.
 236 Montgomery, R. M., Youngstown, O.
 237 Caldwell & Tod, Youngstown, O.
 238 Byers & McIlhainy, Youngstown, O.
 239 Mauser & Haid, Youngstown, O.
 240 Hamilton, Homer, Youngstown, O.
 241 Warthorst & Co., Massillon, O.
 242 Stocking, Z. S., Mansfield, O.
 243 Bosler, Marcus, Dayton, O.
 244 Huffman, William, Dayton, O.
 245 Tremain, Chas., Manlius, N. Y.—Cement and land plaster. V 72. 103
 246 Ervin, D. S., Cedarville, Ohio.—Limestone. V 61 to 64. 103
 246^b Howes Cave Association, Howes Cave, N. Y.—Hydraulic cement and lime, ground plaster, and rock strata. Y 55. 103
 247 Fireproof Building Co., New York, N. Y.—Teil concrete hollow blocks, hollow bricks, and beton blocks. T 55. 103
 247^a Michael, F. M., and others, Eaton, Ohio.—Limestone and lime. V 61 to 63. 103
 247^b Sints, George, Springfield, O.—Limestone and lime. V 61 to 64. 103
 248 Mitchell, Wilson, Philadelphia, Pa.—Portland artificial stone building blocks, partitions, floors, colored paving tiles, etc. T 53. 103
 248^a Richardson, Geo., Milwaukee, Wis.—Artificial stone, with moulds and apparatus for hardening. X 57. 103
 250 Wampum Cement & Lime Co., limited, New Castle, Pa.—Portland cement, and samples in artificial stone of various designs. T 57. 103
 251 Copley Cement Co., Allentown, Pa.—Cements, building blocks, pipe, ornaments, etc. T 56. 103
 252 Allen Cement Co., Siegfried's Bridge, Pa.—Crude and manufactured cement. T 57. 103
 253 Cedar Hollow Lime Co., Philadelphia, Pa.—Lime, lime rock, model of furnace, and model of receptacle for storing and preserving lime. T 58. 103
 255 Abbott Pavement Co., Brooklyn, N. Y.—Pavement. The Abbott Pavement is a bituminous concrete that has been used for six years past on many miles of roadways in Brooklyn, and for four or five years in Washington. It costs less than the asphalt pavement of Paris; in this country only about one-half. It costs less than one-half for repairs, and it is not nearly so slippery, while in all the other qualities, of smoothness, quietness, cleanliness, comfort to those driving on it, economy of horseflesh and vehicles, it is admirable. Under patents held by the Abbott Pavement Company, old stone, macadam, and wood pavements can be utilized as a foundation, and millions of dollars' worth of wood pavements, now going rapidly to decay, can be saved, as demonstrated on many miles that have been covered in the city of Brooklyn. T 70. 103
 256 Union Stone Co., Boston, Mass.—T 50.
 a Articles in artificial stone, soapstone register borders, millstone cement, etc. 103
 b Emery wheels. 106
 256^a Shields, King & Co., Newark Star Glass Works, Newark, Ohio.—Sands, etc., for making glass. V 61 to 63. 104
 257 Hampton, Cutter, & Sons, Woodbridge, N. J.—Clays, kaolin, sand. T 55. 104
 258 Such, George, South Amboy, N. J.—Samples of clay. T 58. 104
 259 Sarchet, J. W. & J. T., Glen Loch Post Office, Pa.—T 57.
 a Moulding sand and kaolin. 104
 b Flint. 106
 260 Kier Brothers, Pittsburg, Pa.—Fire clay. Y 56. 104
 261 Bradford, H., Philadelphia, Pa.—Maryland quartz. T 54. 104
 261^a Tucker, George, New York, N. Y.—Tripoli and polishing rouge. N 68. 106
 262 Schreiber, W. A. H., Phoenixville, Pa.—Clay, kaolin, flint, spar, and sand; potters' and decorators' materials. T 69. 104
 263 Toll, Charles, Monroe, Mich.—Washed and crude silice. V 67. 104
 264 Zihlmann, Joseph, Bellaire, O.—Wooden mould for shaping blown glass. T 64. 104
 265 Dover Fire Brick Co., Canal Dover, Ohio.—Fire clay. T 63. 104
 266 Kreischer, B., & Son, Philadelphia, Pa.—Fire clay, etc. X 56. 104
 267 American Kaolin Co.; Works, New Garden, Chester county, Pa.; office, 233 South Third street, Philadelphia, Pa.—Kaolin, china, fire clay, and fire sand. X 58. 104
 268 Dixon Crucible Co., Jersey City, N. J.—Crude and refined graphite. P 72. 105
 269 Strow, Wile, & Co., Philadelphia, Pa.—Black lead crucibles, retorts, covers, etc.; plumbago, crude and prepared; lumber pencils, stove polish. T 59. 105
 270 Taylor, Robert, & Co., Philadelphia, Pa.—Black lead crucibles. T 58. 105
 271 Morse Bros., Canton, Mass.—Stove polish, lumber pencils, plumbago. The "Rising Sun Stove Polish," noted for beauty of polish, saving of labor, durability, freedom from dust and odor, when heated. This preparation is an excellent article. The Rising Sun Lumber Pencils, and samples of plumbago, from which they are manufactured. T 56. 105
 273 Jersey City Crucible Manufacturing Co., Jersey City, N. J.—Crucibles and stove polish. T 58. 105
 274 Phoenix Manufacturing Co., Taunton, Mass.—Crucibles and stove polish. T 58. 105
 275 Webb, Robert, Boston, Mass.—Stove polish; crude and prepared plumbago. T 60. 105

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

ESTABLISHED 1830.

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Minerals, Mineral Water, Metallurgical Products.

276 Nibbinger, Edward, Philadelphia, Pa.—Quartz paste for sharpening razors and knives. T 52. 106

277 Hand, James C., & Co., Philadelphia, Pa.—Corundum manufactured by the Pennsylvania Corundum Co. T 57. 106

278 Washington Mills Emery Manufacturing Co., Ashland, Mass.—Emery. T 57. 106

279 Boyd & Chase, New York, N. Y.—Arkansas and Washita oilstone. N 68. 106

284 U. S. Soapstone Manufacturing Co., Cincinnati, O.—Steatite. P 77. 106

285 Patten, F. H., Bath, Maine.—Feldspar and quartz, for potteries and sand paper factories. T 70. 106

286 Lehigh Whetstone Co., Allentown, Pa.—Whetstones from Lenigh mountain, near Allentown, Pa. T 57. 106

288 Coffin, Redington, & Co., New York, N. Y.—Electro selean, a polishing powder for all fine metals, and infusorial silica from Nevada, from which the above is made.

Analysis:	
Silica,	83.5
Alumina,	2.7
Water,	13.5
Loss,	.3
	—100.

T 72. 106

289 Louis, Julius, & Bro., Jeffersonville, Ind.—Hot Springs, Arkansas, and other oilstones. N 68. 106

290 Sibley, Freeman K., Waltham, Mass.—The prize medal emery and crocus cloth. (Only medals ever awarded in the world.) T 53. 106

291 Schultz, Carl H., New York, N. Y.—Carbonic acid and mineral spring waters, siphons, glass fountains, etc. T 58. 107

291a Jarves & Hooper, Detroit, Mich.—T 53. 107

a Fertilizers and animal charcoal. 107

b Glue and neat's-foot oil. 652

292 Knight & Widden, Portland Plaster Mills, Portland, Maine.—Calcined and ground land plaster. T 59. 107

293 Champion Spouting Spring, Saratoga Springs, N. Y.—Saratoga water. T 58. 107

294 Marsh & Co., Sandusky, O.—Gypsum. V 61 to 63. 107

295 Gettysburg Katalysine Co., Gettysburg, Pa.—Katalysine spring water. T 57. 107

296 Navassa Phosphate Co., Baltimore, Md.—Crude and ground phosphates, from Navassa Island, West Indies; and other fertilizing materials. T 57. 107

297 Charleston, S. C., Mining & Manufacturing Co., Philadelphia, Pa.—Goodrich phosphatic nodules, mined from Agassiz's Ashley fish basin, Lamb's landing, S. C. T 58. 107

298 Bolen & Byrne, New York, N. Y.—Artificial mineral waters, granular effervescent salts, siphons, etc. T 60. 107

299 Lippincott, Chas., & Co., Philadelphia, Pa.—Apparatus for dispensing aerated waters. B 38. (*Names and Transcripts.*) 107

300 Lawrence, A. R., & Co., Excelsior Park, Saratoga Springs, N. Y.—Excelsior and Union Spring Saratoga waters, and apparatus for having them on draught in their natural condition. T 70. 107

300a Tufts, Jas. W., Boston, Mass.—Soda water fountains. (*Names and Transcripts.*) 107

Metallurgical Products.

301 Hastings & Co., Philadelphia, Pa.—Gold leaf, foil, and bronze; silver leaf, bronze powder, etc. P 47. 110

302 Wallis, Jno. G., Fulton, Ark.—Base bullion. N 55. 110

303 Cambria Iron & Steel Co., Johnstown, Pa.—Iron—pig, bloom, and muck bar, rail piles and rails; steel—Bessemer pig, and spiegeleisen, ingots, blooms, and rails. T 65. 111

303a Huntingdon & Broad Top Railroad Co., Philadelphia, Pa.—Pig iron. Y 56. 111

304 Wood, W. D., & Co., McKeesport Iron Works, Pittsburg, Pa.—Patent planished sheet iron. T 61. 111

305 Park Bro. & Co., Black Diamond Steel Works, Pittsburg, Pa.—Cast steel; samples of homogeneous crucible cast steel, boiler plate, and flangings. T 62. 111

305a Mahoning Valley Centennial Association, Youngstown, Ohio.—Pig and manufactured iron. V 63. 111

306 Rowland, James, & Co., Kensington Iron and Steel Works, Philadelphia, Pa.—Anvil brand, refined bar, band, skelp, hoop, and nut iron; plow, cultivator, and shovel steel. T 64. 111

307 Wood, Alan, & Co., 519 Arch street, Philadelphia, Pa.—Manufacturers of patent planished, galvanized, and common, and charcoal bloom, sheet, and plate iron. T 61. 111

307a Andover Iron Co., Phillipsburg, N. J.—Pig and spiegeleisen iron. T 64. 111

308 Straus, J. E., & Co., Philadelphia, Pa.—Hoop iron. P 71. 111

309 Miller, Metcalf, & Parkins, Crescent Steel Works, Pittsburg, Pa.—Crucible steel and articles manufactured therefrom. T 60. 112

309a Glasgow & Port Washington Iron and Steel Co., Port Washington, O.—Pig iron. W 63. 111

310 Hussey, Wells, & Co., Pittsburg, Pa.—Crucible cast steel bars, sheets, homogeneous boiler plates, railway axles, forgings, edge tools, rake teeth. T 68. 111

311 Phillips, Nimick, & Co., Sligo Iron Mills, Pittsburg, Pa.—Iron. The only manufacturers of "sligo" fire box, boiler plate, sheet and bar iron, and "Tyron" plate, tank, sheet, and bar iron. Slates rolled one hundred inches wide. T 67. 111

312 Union Iron Co. of Buffalo, Buffalo, N. Y.—Solid wrought iron rolled beams. T 64 and U 60. 111

321a State of Indiana (by E. T. Cox, State Geologist).—Fig, bar, and railroad iron; cut nails. V 57. 111

Metallurgical Products.

- 313** Otis Iron & Steel Co., Cleveland, O.—Ingots, bars, plates, and forgings of Siemen's Martin steel. T 65. 111
- 314** Cleveland Rolling Mill Co., Cleveland, O.—Pig metals, rails, bars, etc., of iron and Bessemer or Siemen's Martin steel. T 60. 111
- 315** South & North Alabama Railroad, Montgomery, Ala.—Iron. Y 60 and T 57. 111
- 316** State of New Jersey (by Geo. H. Cook, State Geologist, New Brunswick, N. J.).—T 70.
 a Iron, steel, spiegeleisen. 111
 b Spelter, sheet zinc, zinc white. 113
- 317** Peru Steel & Iron Co., Clintonville, N. Y.—Loops, blooms, billets, bars, and steel. T 63. 111
- 317a** Silicon Steel Co., New York, N. Y.—Silicon steel, rails, etc.; steelified iron. T 63. 111
- 318** Washburn & Moen Manufacturing Co., Worcester, Mass.—Iron wire rods; iron and steel wire. T 63. 111
- 318a** Valentines & Co., Bellefonte Iron Works, New York, N. Y.—Cold blast charcoal iron. T 61. 111
- 318b** Youngstown Rolling Mill Co., Youngstown, Ohio.—Horse shoe, bar, hoop, and band iron, steel mixed with iron. V 61 to 64. 111
- 318c** Wick, Ridgway, & Co., Youngstown, Ohio.—Railroad iron, of all sizes. V 61 to 64. 111
- 318d** Brown, Bonnett, & Co., Youngstown, Ohio.—Pig, bar, and sheet iron. V 61 to 64. 111
- 318e** Eyhon & Lloyd, Philadelphia, Pa.—Roughing rolls, hand rounds, and squares. T 65. 111
- 319** American Sheet & Boiler-plate Co., Cleveland, Ohio.—Plate, sheet, corrugated, galvanized, metallic tile, universal plate and agricultural iron, Bessemer or Siemen's Martin steel. T 59. 111
- 320** Cooper, Hewitt, & Co., New York, N. Y.—Iron fluxes, blooms, pigs, rods, bars, rails, beams; chain, wire, horseshoe, and Martin steel. T 66. 111
- 321** Hanging Rock Iron Region Furnaces (Chas. Campbell, Commissioner), Ironton, Ohio.—Pig iron, with articles manufactured therefrom. T 69. 111
- 322** Beale, Horace A., Parkesburg, Pa.—Charcoal and puddled iron for boiler tubes and plates, muck bar of superior quality, and hollow bottom plates for puddling furnace. T 66. 111
- 323** Clark, Wm., & Co., Pittsburg, Pa.—Hoop, band, and scroll iron. T 66. 111
- 324** Reese, Graff, & Woods, Pittsburg, Pa.—Wrought iron of all descriptions; cast and special steel; tool steel, spring steel, plow steel, machinery and agricultural steel, fire steel, steel hoop, steel cotton ties, horse and mule shoes, steel toe calks, steel boiler-plate. T 66. 111
- 325** Andrews Brothers, Youngstown, O.—Bessemer, foundry, and mill pig iron. V 61 to 64. 111
- 326** McCullough Iron Co., Philadelphia, Pa.—Bloom and refined cleaned sheet iron; charcoal blooms. Manufacturers of "Galvanized," "Best Bloom," "Best Refined," "Harvey's cleaned Sheet Iron," cleaned iron for stamping purposes, leaded roofing plates, corrugated iron, black and galvanized. P 70. 111
- 327** Moorhead & Co., Soho Iron Mills, Pittsburg, Pa.—Galvanized and black sheet iron; roofing and ceiling irons. T 66. 111
- 328** Henderson, James, Hamburg, Pa.—Wrought iron made by the Henderson process. T 59. 111
- 329** Brown & Co., Wayne Iron & Steel Works, Pittsburg, Pa.—Cold-blast charcoal metal, blooms, boiler plate, bars; agricultural irons. T 62. 111
- 331** Edgar Thomson Steel Co. (limited), Pittsburg, Pa.—Bessemer steel rails, billets, blooms, and ingots. T 66. 111
- 333** Lucy Furnace Co., Pittsburg, Pa.—Pig metal, etc. T 66. 111
- 334** Carnegie Bros. & Co., Pittsburg, Pa.—Wrought iron beams, channels, bridge iron, etc. T 66. 111
- 335** Wilson, Walker, & Co., Pittsburg, Pa.—Railroad car forgings. T 66. 111
- 336** Keystone Bridge Co., Pittsburg, Pa.—Raritan Bay pivot bridge, weldless chord bars, wrought iron, tubular sectional columns. T 66. 111
- 337** United States Corrugated Elbow Co., Cincinnati, Ohio.—Stovepipe elbow machine; stovepipe elbows. T 61. 111
- 338** Gregory & Co., Jersey City, N. J.—American cast steel. T 59. 111
- 339** Duncan, John W., Philadelphia, Pa.—Pig metal. T 72. 111
- 340** Tuscarawas Coal & Iron Co., Cleveland, Ohio.—Pig iron. T 71 and V 63. 111
- 341** Rhodes & Co., Cleveland, Ohio.—Bessemer car-wheel and malleable charcoal irons. T 71 and V 63. 111
- 342** Woodstock Iron Co., Anniston, Ala.—Hot-blast, cold-blast, and spiegeleisen iron, charcoal. T 63. 111
- 343** Middleton, C. W. & H. W., Philadelphia, Pa.—Collective exhibit of Fort Pitt Iron & Steel Works, Soho Iron Mills, Solar Hoop Iron Mills, Philadelphia Iron & Steel Co., Parkesburg Iron Works, Corydon Winch, Van Allen & Co., Cumberland Tube Works, Danville Iron Co. and Star Chain and Nail Works—iron and steel. T 65 to 66. 111
- 344** Crane Iron Co., Catsasauqua, Pa.—Foundry and forge pig iron; cinder. T 64. 111
- 345** Alexander, John S., Philadelphia, Pa.—Bayonet spade. P 68. 111
- 346** Singer, Nimick, & Co., Pittsburg, Pa.—Saw, tool, plow, machinery, safe, and boiler steel; steel railway axles and springs. T 69. 111
- 346a** Selma & Alabama Railroad, Montgomery, Ala.—Iron. Y 60. 111
- 347** Magnetite Iron Co., Philadelphia, Pa.—Bessemer ore products. T 69. 111
- 348** Crab Orchard Iron Co., Philadelphia, Pa.—Samples of iron and steel. T 69. 111

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26

Metallurgical Products.

- 348^a Chester Iron Co., Chester, N. J.—Iron ore. T 64. 111
- 349 Danville Iron Co., Danville, Pa.—Railroad iron. T 66. 111
- 350 Winch, Corydon, Philadelphia, Pa.—Wrought iron spikes. T 66. 111
- 351 Philadelphia Iron & Steel Co., Philadelphia, Pa.—Special shapes and manufactures of iron. T 66. 111
- 351^a Ward, L. B., Niles, O.—Common boiled iron. V 61 to 63. 111
- 352 Cumberland Nail & Iron Co., Bridgeton, N. J.—Wrought iron pipe. T 66. 111
- 353 Davis, O. W., Jr., Bangor, Me.—Charcoal pig iron, fluxes, cinders; articles made in part from Katahdin iron. T 69. 111
- 354 Durham Iron Co., Riegelsville, Pa.—Flux, pig iron, and cinders. T 64. 111
- 355 Glendon Iron Co., Easton, Pa.—Flux, slag, and pig iron. T 64. 111
- 356 Selma, Rome, & Dalton Railroad, by S. W. Baird, Cincinnati, O.—Charcoal pig iron, slag and charcoal, spiegel, car wheels. X 64. 111
- 359 Northampton Furnace, worked by the Bethlehem Iron Co., Bethlehem, Pa.—Pig iron, flux, slags. T 64. 111
- 360 Lehigh Iron Co., Allentown, Pa.—Flux, slag, and pig iron. T 64. 111
- 361 Bethlehem Iron Co., Bethlehem, Pa.—Charges and products of iron, Bessemer, and spiegelisen furnaces; products from Bessemer steel mill. T 64. 111
- 362 Emaus Iron Co., Allentown, Pa.—Flux, slag, and iron. T 64. 111
- 363 Coleraine Iron Co., Northampton county, Pa.—Pig iron. T 64. 111
- 364 Thomas Iron Co., Hokendauqua, Pa.—Iron and flux. T 64. 111
- 365 Allentown Rolling Mill Co., Allentown, Pa.—Flux, iron, and slag, fist-plate bolts, nuts, spikes, rivets, etc. T 64. 111
- 366 Allentown Iron Co., Allentown, Pa.—Pig iron. T 64. 111
- 367 Lehigh Valley Iron Co., Copley, Pa.—Pig iron, cinders. T 64. 111
- 368 Carbon Iron Co., Parryville, Pa.—Flux, slag, and pig iron. T 64. 111
- 369 Saucon Iron Co., Hellertown, Pa.—Pig iron. T 64. 111
- 370 Catasaugua Iron Co., Catasaugua, Pa.—Rolled iron and steel, iron and steel bars beat hot and cold and fractured. T 64. 111
- 371 Lehigh Zinc Co., Bethlehem, Pa.—Metallic and sheet zinc, zinc oxide. T 64. 111
- 372 Stewart & Co., South Easton, Pa.—Round, square, and triangular iron wire. T 64. 111
- 373 Gough, Edward, Allentown, Pa.—Turned rolls. T 65. 111
- 374 Bay State Iron Co., Boston, Mass.—Homogeneous iron boiler plates and iron. T 64. 111
- 375 Co-operative Iron & Steel Works, Danville, Pa.—T and street passenger railroad iron. T 63. 111
- 376 Shalter, R. M., Carrick Furnace, Franklin county, Pa.—Cold-blast pig iron. T 63. 111
- 377 Philadelphia & Reading Railroad Co., Philadelphia, Pa.—Rails. T 72. 111
- 378 Mintzer, S. J. W., Philadelphia, Pa.—Silicon steel. T 63. 111
- 379 Shelby Iron Co., Shelby Iron Works, Ala.—Charcoal pig iron, chilled castings, wire rods, cotton ties. T 71. 111
- 380 Chrome Steel Co., Brooklyn, N. Y.—Chrome steel, with samples showing torsional, tensile, and compressive strength; welded chrome steel and iron; ingredients of manufacture. T 64. 111
- 381 Cartwright, McCurdy, & Co., Youngstown, O.—Hoop, band, and horseshoe iron and steel. V 63 and T 64. 111
- 382 Burton, J. P., Massillon, O.—Iron from Massillon Furnace. V 63. 111
- 383 Rockhill Iron & Coal Co., Philadelphia, Pa.—Pig iron. T 72. 111
- 384 Tecumseh Iron Co., Tecumseh, Ala.—Charcoal pig iron, limestone, charcoal. T 70. 111
- 385 Albany & Rensselaer Iron & Steel Co., Troy, N. Y.—Bessemer steel and iron rails, plates, merchant bars, axles, horseshoes, etc. T 68. 111
- 386 Nes, Charles M., York, Pa.—Silicon steel; steel and steel capped rails. T 63. 111
- 388 Grand Tower Mining, Manufacturing, & Transportation Co., Grand Tower, Ill.—Iron ore products; cokes. T 68. 111
- 389 Globe Rolling Mill Co., Cincinnati, O.—Specialties, Globe Norway iron and Globe refined iron. Iron, T 63. 111
- 390 Lackawanna Iron & Coal Co., Scranton, Pa.—Steel and iron railroad bars. T 63. 111
- 391 Passaic Rolling Mill Co., Paterson, N. J.—Rolled iron, rivets, nuts. T 64. 111
- 392 Cox, Justice, Jr., & Co., Philadelphia, Pa.—Pig, bar, sheet, tank, pipe, and angle iron; spikes, railway car axles. T 70. 111
- 394 Rogers, J. & J., Iron Co., Ausable Forks, N. Y.—Round and square iron and charcoal billets for steel, from Palmer ore. T 62. 111
- 395 Vesuvius Furnace, Etna Iron Works, Ironton, Ohio.—Pig iron, cold blast charcoal car-wheel iron. T 68. 111
- 396 Etna Furnace, Etna Iron Co., Hanging Rock, O.—Pig iron, cold-blast charcoal car-wheel iron. T 68. 111
- 397 Alice Furnace, Etna Iron Works, Hanging Rock, O.—Pig iron, "Whitwell ovens," and Ferry process. T 68. 111
- 397^a Briar Hill Iron & Coal Company, Youngstown, O.—Pig iron of various grades. V 61 to 64. 111
- 398 Blanche Furnace, Etna Iron Works, Ironton, Ohio.—Pig irons, Whitwell hot blast and Ferry process. T 68. 111
- 399 Hecla Iron & Mining Co. (John Campbell, President), Ironton, O.—Pig iron, cold blast charcoal car-wheel irons. T 68. 111
- 399^a Struthers Iron Co., Youngstown, O.—Bessemer, foundry, and gray forge pig iron. V 61 to 63. 111

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-100.

Metallurgical Products.

- 400 Monitor Furnace Co., Ironton, O.—Pig iron, cold blast charcoal car-wheel iron. T 68. 111
- 401 Mount Vernon Furnace, Hiram Campbell & Sons, Ironton, O.—Pig iron, hot blast charcoal foundry iron. T 68. 111
- 401a Brooke, E. & G., Birdsboro', Pa.—Keystone pig iron. T 67. 111
- 402 Grant Furnace, W. D. Kelly & Sons, Ironton, O.—Pig iron, hot blast charcoal irons. T 68. 111
- 403 Center Furnace, W. D. Kelly & Sons, Ironton, O.—Pig iron, hot blast charcoal irons. T 68. 111
- 404 Howard Furnace Charcoal Iron Co., Ironton, O.—Pig iron, hot blast charcoal irons. T 68. 111
- 405 Buckhora Furnace, Charcoal Iron Co., Ironton, O.—Pig iron, hot blast charcoal irons. T 68. 111
- 406 Olive Furnace, Campbell, McGugin, & Co., Ironton, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 407 Lawrence Furnace Co., Ironton, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 408 Pine Grove Furnace, Means, Kyle, & Co., Hanging Rock, O.—Pig iron, hot blast charcoal irons. T 68. 111
- 409 Ohio Furnace, Means, Kyle, & Co., Hanging Rock, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 410 Ironton Furnace Iron and Steel Co., Ironton, O.—Pig iron, Player hot blast. T 68. 111
- 411 Belfont Iron Works, Ironton, O.—Pig iron, Player hot blast. T 68. 111
- 412 Washington Furnace, Union Iron Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 413 Scioto Furnace, L. C. Robinson & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 414 Bloom Furnace, John Paul & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 415 Clinton Furnace, W. I. Bell, Wheelersburg, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 416 Buckeye Furnace Co., Jackson, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 417 Cambria Furnace, D. Lewis & Co., Samsonville, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 418 Jackson Furnace, L. P. N. Smith's heirs, Sciotoville, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 419 Jefferson Furnace Co., Oak Hill, O.—Pig iron; cold blast charcoal car-wheel and machinery iron. T 68. 111
- 420 Orange Iron Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68. 111
- 421 Star Furnace Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68. 111
- 422 Huron Iron Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68. 111
- 423 Tropic Furnace Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68. 111
- 424 Globe Iron Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68. 111
- 425 Fulton Furnace, Globe Iron Co., Jackson, O.—Pig iron, hot blast Jackson county stone coal iron. T 68. 111
- 426 Ophir Furnace Co., Jackson, O.—Hot blast pig iron. T 68. 111
- 427 Milton Furnace & Coal Co., Wellston, O.—Pig iron, Jackson county softener iron. T 68. 111
- 428 Wellston Coal & Iron Co., Wellston, O.—Pig iron, Jackson county stone coal iron. T 68. 111
- 429 Lincoln Furnace, I. M. McGhee's estate, Rud's Mills, O.—Pig iron, cold blast charcoal iron. T 68. 111
- 430 Eagle Furnace, L. C. Damarin & Co., Rud's Mills, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 431 Richland Furnace Co., Richland P. O., O.—Pig iron, hot blast charcoal iron. T 68. 111
- 432 Hope Furnace, L. C. Damarin & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 433 Hamden Furnace, L. C. Damarin & Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 434 Vinton Furnace, Bancroft, Rader, & Co., Vinton Station, O.—Pig iron, hot blast bituminous coal and coke irons. T 68. 111
- 435 Keystone Furnace Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 436 Monroe Furnace, Union Iron Co., Portsmouth, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 437 Latrobe Furnace, Bundy & Cobb, Berlin Cross-roads, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 438 Logan Furnace Co., Logan county, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 439 Union Furnace, Brooks & Hueston, Haydensville, O.—Pig iron, hot blast charcoal iron. T 68. 111
- 440 Pascal Iron Works, Philadelphia, Pa.—Cast iron work for Main Exhibition Building. 111
- 441 Lewis, Oliver, & Phillips, Pittsburg, Pa.—Iron in merchant bars and odd shapes. T 64. 111
- 442 Roberts, Henry, Newark, N. J.—Iron, Bessemer steel, and cast steel wire. N 69. 111
- 443 Andrews, Hitchcock, & Co., Cleveland, O.—Merchant bar and sheet iron V 61 to 64. 111
- 444 Mount Savage Furnace, Lexington & Carter county Mining & Manufacturing Co., Lexington, Ky.—Pig iron, hot blast charcoal iron. T 68. 111
- 444a Himrod Furnace Co., Youngstown, O.—Bessemer, foundry, and forge pig iron. V 61 to 64. 111

For location of objects, indicated by letter and figure, see Key to Notation, p. 45; ground plan, p. 46.

Metallurgical Products.

- 445 Buffalo Furnace, Culbertson, E. R. hart, & Co., Greensburg, Ky.**—Pig iron, hot and cold blast charcoal iron. T 68. 111
- 445a Andrews & Hitchcock, Youngstown, O.**—Scotch, foundry, and mill iron. V 61 to 64. 111
- 446 Hunnewell Furnace, Eastern Kentucky Railway Co., Riverton, Ky.**—Pig iron, hot blast charcoal foundry iron. T 68. 111
- 446a Liking Iron Co., Newark, O.**—Pig iron. V 61 to 64. 111
- 447 Pennsylvania Furnace, Eastern Kentucky Railway Co., Riverton, Ky.**—Pig iron, hot blast charcoal foundry iron. T 68. 111
- 448 Charlotte Furnace Co., Riverton, Ky.**—Pig iron, hot blast charcoal foundry iron. T 68. 111
- 449 Laurel Furnace, Robert Scott & Co., Riverton, Ky.**—Pig iron, cold blast charcoal car-wheel iron. T 68. 111
- 450 Gallia Furnace, Norton, Campbell, & Co., Portsmouth, O.**—Pig iron, hot blast charcoal iron. T 68. 111
- 451 Raccoon Mining and Manufacturing Co., Riverton, Ky.**—Pig iron, hot and cold blast charcoal iron. T 68. 111
- 452 Ashland Furnace, Lexington & Big Sandy Railroad Co., Ashland, Ky.**—Pig iron, bituminous coal, and Player hot blast. T 68. 111
- 453 Bellefonte Furnace, Means, Russell, & Means, Ashland, Ky.**—Pig iron, hot blast charcoal foundry iron. T 68. 111
- 454 Norton Iron Works, Ashland, Ky.**—Pig iron, nail plate, nails. T 68. 111
- 455 Buena Vista Furnace, Means & Co., Ashland, Ky.**—Pig iron, hot blast charcoal iron. T 68. 111
- 456 Trigg Furnace, D. Hillman & Sons, Empire Iron Works, Ky.**—Pig iron, cinders, etc.; hot blast charcoal iron. T 68. 111
- 457 Center Furnace, D. Hillman & Sons, Empire Iron Works, Ky.**—Pig iron, hot blast charcoal iron. T 68. 111
- 458 Empire Iron Works, Trigg county, Ky.**—Samples of boiler plate and refined charcoal iron. T 68. 111
- 459 Cleveland Malleable Iron Co., Cleveland, O.**—Malleable iron castings and tackle blocks; fifth wheels. T 55. 111
- 460 Traber & Aubery, Cincinnati, O.**—Broken car-wheels, chill tests, and castings from Hanging Rock pig iron; pig iron. T 68. 111
- 461 Hanging Rock Iron Region, Iron-ton, O.**—Pig iron. T 68. 111
- 462 Sellers, William, & Co., Edgemoor Iron Co., Wilmington, Del.**—Wrought and cast iron work for Main Exhibition Building. 111
- 463 Roberts, A. & P., Pencoyd Rolling Mills, Philadelphia, Pa.**—Wrought iron work for Main Exhibition Building. 111
- 464 Morris, Tasker, & Co., Philadelphia, Pa.**—Cast iron work for Main Exhibition Building. 111
- 465 Watson Manufacturing Co., Paterson, N. J.**—Iron framework of the Mair Exhibition Building. 111
- 466 Pusey, Jones, & Co., Wilmington, Del.**—Iron work for Machinery Hall. 111
- 467 State of Michigan (Jay A. Hubbell, Houghton, Mich., Superintendent of Mineral Department).—V 67.**
 a Pig, ingot, and manufactured iron and steel. 111
 b Ingot, bar, and rolled copper in its various stages. 112
 c Maps, models, stamp-mill model, etc. 120
- 468 Manhattan Brass Co., New York, N. Y.**—Sheet brass; brass, copper, and zinc tubing; brass goods, nickel-plated oilers, etc. T 65. 112
- 469 Pope, Cole, & Co., Baltimore Copper Co., Baltimore, Md.**—Specimens of copper mattes and slags, and refined copper; metallurgical products. T 64. 112
- 470 Reverse Copper Co., Boston, Mass.**—Copper and yellow metal sheets and bars; tinned metal for stove reservoirs; bronze cannon cast by a patented process. T 64. 112
- 471 Pennsylvania Lead Co., Pittsburg, Pa.**—Refined pig lead from ores of Colorado and Utah. T 63. 113
- 472 Benedict & Burnham Manufacturing Co., Waterbury, Conn.**—Sheet brass, German silver, brass tubing, rods, and wire, lamp burners, etc. T 61. 113
- 473 Passaic Zinc Co., Passaic, N. J.**—Zinc ingots, foil, castings, and oxide; sheet zinc. T 63. 113
- 473a Crocker Bros. & Co., Taunton, Mass.**—T 61.
 a Copper and yellow metal. 112
 b Zinc. 113
- 474 Holmes, Booth, & Haydens, Waterbury, Conn.**—Brass and German silver wire, tubing, rivets, lamp trimmings, burners. T 61. 113
- 476 Matthiessen & Hegeler Zinc Co., La Salle, Ill.**—Refined spelter; sheet tin to show the thickness of the common numbers. Various sizes of casks for shipment. Rolled zinc plates for galvanic batteries, lithographing, etc. T 70. 113
- 477 Wharton, Joseph, Camden, N. J.**—Nickel goods. T 63. 114
- 478 Taylor, N. & G., Co., Philadelphia, Pa.**—Tin plate patterns. T 62. 114
- 480 Scovill Manufacturing Co., Waterbury, Conn.**—Sheet brass; German silver, gold and silver plated metal; lamps and trimmings; hinges, buttons, thimbles, castors, metal tubes, etc. P 67. 114
- 481 Ansonia Brass & Copper Co., Ansonia, Conn.**—Brass and copper goods, sheet metal and wire, planished brass and copper. T 54. 114
- 482 Waterbury Brass Co., Waterbury, Conn., and 52 Beekman street, New York, N. Y.**—Brass and German silver in sheets, rolls, wire, and tubes; brass kettles, copper and brass rivets and bolts; percussion caps, all qualities; powder flasks, shot belts and pouches; game bags, metallic eyelets, and tape measures. T 62. 114
- 483 Lancroft, C. E. & H. B., Fair Haven, Conn.**—Sulphates of nickel, ammonia, cobalt, and aluminum. P 68. 114

Mining Engineering.

Mining Engineering.

- 484 Holley, Alexander L., New York, N. Y.—Exhibit relating to metallurgical engineering. (*West gallery*). 120
- 485 State of New Jersey (by Geo. H. Cook, State Geologist, New Brunswick, N. J.).—Geological maps, mine maps, mine and vein models. T 70. 121
- 485^a Lowe, S. B., Chattanooga, Tenn.—Map of Chattanooga iron district. X 63. 120

- 486 Prince, Franklin & Bullock, E. L., Audenried, Pa.—Model of the Wharton anthracite coal vein at Beaver Brook collieries, Audenried, Pa. T 60. 121
- 487 Hanford, Theodore, Jersey City N. J.—Specimen of the strata of the Gravelly Gold Mines of Ballarat, Victoria Australia. T 64. 121
- 488 Charleston, S. C., Mining & Manufacturing Co., Philadelphia, Pa.—Model of their works. Y 60. 121

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26

THE American Newspaper Union.

A. J. AIKENS, President.

New York Newspaper Union, 148 and 150 Worth St., New York.	}	315 Newspapers, \$3.00 per line, per week.			
Chicago Newspaper Union, 114 Monroe St., Chicago.		350	"	\$3.50	" "
Milwaukee Newspaper Union, 365 East Water St., Milwaukee.	}	120	"	\$1.25	" "
Aikens Newspaper Union, 143 Race St., Cincinnati.					
Southern Newspaper Union, 227 Second St., Memphis, Tenn.	}	145	"	\$1.50	" "
St. Paul Newspaper Union, 17 Wabashaw St., St. Paul, Minn.					
		73	"	\$.75	" "

THE ORIGIN OF CO-OPERATIVE NEWSPAPER ADVERTISING.

Co-operative newspaper printing, as now practised, originated in Wisconsin twelve years ago. It is termed *co-operative* for the reason that one side of each of the newspapers is printed at a central office, and the paper sent in its half-printed state to the home office, where it is completed with editorials, local news, and other matter prepared by the editor or publisher. In December, 1846, the idea of co-operation, *with advertisements*, occurred to Mr. Aikens, while yet serving his time as an apprentice, in printing the message of President Polk on one side of a country newspaper of New England at Boston, and the other half being printed at the local office.

Mr. A. J. Aikens, a practical printer and business man, conceived the idea of reducing the cost of ready-printed paper, as it is now termed, to country publishers, by making an agreement with them to use a certain space in each of their papers for advertisements that he might procure. This plan of co-operation he put into practice twelve years ago, at the office of Cramer, Aikens & Cramer, Milwaukee. It at once became successful, leading to the establishment of co-operative newspaper printing-offices in Chicago, New York, St. Louis, Cincinnati, Memphis, St. Paul, and other places. There are now over two thousand newspapers printed upon the co-operative plan in the United States and Canadas, and the number is constantly increasing, it having more than doubled in the last five years. The enterprise is no longer an experiment, but an established success, and the system is one yielding manifold advantages to advertisers as well as to local publishers.

The American Newspaper Union

Is essentially national. The papers represented in it are located in all the States of the Union and in nearly five hundred county seats. They circulate over the whole area of the country from Maine to Colorado, distributing at least *one hundred copies every year to each square mile of the settled portions of the United States*.

Although, as a whole, the Union List is national, covering all sections, it is so made up of different members as to be susceptible of easy division into sections—East, Middle, West, South. The distribution of the papers is as follows:

New England	78	Illinois	117	Nebraska	15
New York	101	Michigan	86	Missouri	17
New Jersey	27	Wisconsin	98	Georgia	10
Pennsylvania	65	Tennessee	29	Alabama	32
Virginia	24	Kentucky	29	Louisiana	11
No. and So. Carolina . .	24	Minnesota	79	Mississippi	29
Ohio	122	Iowa	85	Other States	46
Indiana	81				

AGGREGATE CIRCULATION.

The circulation of these papers is large and constantly increasing. It is larger than the circulation of any other lists or combinations of country papers in the United States—the last aggregate weekly circulation being *seven hundred thousand seven hundred and thirty copies* (700,730).

SEND TO EITHER OFFICE FOR A CIRCULAR.

HEALTH! BEAUTY!!

Strong, Pure, and Rich Blood, Increase of Flesh and Weight, Clear Skin, and Beautiful Complexion secured to all through

DR. RADWAY'S SARSAPARILLIAN RESOLVENT

Every drop of the Sarsaparillian Resolvent communicates through the Blood, Sweat, Urine, and other fluids and juices of the system the vigor of life, for it repairs the wastes of the body with new and sound material. Scrofula, Consumption, Glandular Disease, Ulcers in the Throat, Mouth, Tumors, Nodes in the Glands and other parts of the system, Sore Eyes, Strumous Discharges from the Ears, and the worst forms of Skin Diseases, Eruptions, Fever Sores, Scald Head, Ring Worm, Salt Rheum, Erysipelas, Acne, Black Spots, Worms in the Flesh, Tumors, and all Weakening and Painful Discharges and Night Sweats are within the curative range of this wonder of Modern Chemistry, and a few days' use will prove to any person using it for either of these forms of disease, its potent power to cure them. If the patient, daily becoming reduced by the wastes and decomposition that are continually progressing, succeeds in arresting these wastes, and repairs the same with new material, made from healthy blood, and this the Sarsaparillian will and does secure, a cure is certain; for, when once this remedy commences its work of purification and succeeds in diminishing the loss of wastes, its repairs will be rapid, and every day the patient will feel himself growing better and stronger, the food digesting better, appetite improving, and flesh and weight increasing. Not only does the SARSAPARILLIAN RESOLVENT excel all known remedial agents in the cure of Chronic, Scrofulous, Constitutional, and Skin Diseases, but it is the only positive cure for Kidney, Bladder, and Urinary Diseases, Gravel, Diabetes, Dropsy, Stoppage of Water, Incontinence of Urine, Bright's Disease, Albuminaria, and in all cases where there are brickdust deposits, or the water is thick, cloudy, mixed with substance like the white of an egg, or threads like white silk, or there is a morbid, dark, bilious appearance, and white bonedust deposits, and when there is a pricking, burning sensation when passing water, and pain in the Small of the Back along the Loins.

Tumor of 12 years' growth cured by Radway's Resolvent.

BEVERLY, MASS., July 18th, 1869.

DR. RADWAY: I have had Ovarian Tumor in the ovaries and bowels. All the doctors said "there was no help for it." I tried everything that was recommended, but nothing helped me. I saw your Resolvent, and thought I would try it, but *had no faith* in it, because I had suffered for TWELVE YEARS. I took *six bottles of the Resolvent*, one box of Radway's Pills, and used two bottles of your READY RELIEF, and there is not a sign of a tumor to be seen or felt, and I feel BETTER, SMARTER, and happier than I have for twelve years. The worst tumor was in the left side of the bowels, over the groin. I write this to you for the benefit of others. You can publish if you choose. * * *

HANNAH P. KNAPP.

R. R. R.

RADWAY'S READY RELIEF

Cures the worst pains in from one to twenty minutes. Not one hour after reading this advertisement need any one suffer with pain. Radway's Ready Relief is a cure for every pain. It was the first and is *THE ONLY PAIN REMEDY* that instantly stops the most excruciating pains, allays Inflammations, and cures Congestions, whether of the Lungs, Stomach, Bowels, or other glands or organs, by one application, *in from one to twenty minutes*. No matter how violent or excruciating the pain the Rheumatic, Bedridden, Infirm, Crippled, Nervous, Neuralgic, or prostrated with disease may suffer,

RADWAY'S READY RELIEF

Will afford instant ease. Inflammation of the Kidneys, Inflammation of the Bladder, Inflammation of the Bowels, Congestion of the Lungs, Sore Throat, Difficult Breathing, Palpitation of the Heart, Hysterics, Croup, Diphtheria, Catarrh, Influenza, Headache, Toothache, Neuralgia, Rheumatism, Cold Chills, Ague Chills. The application of the READY RELIEF to the part or parts where the pain or difficulty exists will afford ease and comfort. Twenty drops in a half tumbler of water will, in a few moments, cure Cramps, Spasms, Sour Stomach, Heartburn, Sick Headache, Diarrhoea, Dysentery, Colic, Wind in the Bowels, and all Internal Pains. Travelers should always carry a bottle of RADWAY'S RELIEF with them. A few drops in water will prevent sickness or pains from change of water. It is better than French Brandy or Bitters as a stimulant.

FEVER AND AGUE

FEVER AND AGUE cured for FIFTY CENTS. There is not a remedial agent in this world that will cure Fever and Ague and all other Malarious, Bilious, Scarlet, Typhoid, Yellow, and other Fevers (aided by RADWAY'S PILLS) as quick as RADWAY'S READY RELIEF. Fifty cents per bottle.

DR. RADWAY'S PILLS,

Perfectly tasteless, elegantly coated, for the cure of all Disorders of the Stomach, Liver, Bowels, Kidneys, Bladder, Nervous Diseases, Headache, Constipation, Costiveness, Indigestion, Dyspepsia, Biliousness, Bilious Fever, Inflammation of the Bowels, Piles, and all Derangements of the Internal Viscera. Warranted to effect a Positive Cure. RADWAY'S PILLS will free the system from all the above-named disorders. Price, 25 cents per box.

Read FALSE AND TRUE. Send one letter stamp to RADWAY & Co., No. 32 Warren Street, New York. Information worth thousands will be sent you.

GREAT BRITAIN.

(North of Nave, Columns 23 to 38.)

Minerals, Ores, Stone, Mining and Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 West Cumberland Iron & Steel Co. (limited), Workington, Cumberland. 100
 - a Iron ores. 100
 - b Coal and coke. 100
 - c Limestone. 103
- 1a Whitwell, Thomas, Stockton-on-Tees.—Cumberland ores. 100
- 2 Wigan Coal & Iron Co. (limited), Wigan, Lancashire, England.—Cannel and gas coal. 101
- 3 Penrose & Richards, Swansea, South Wales.—Coke fuel. 101
- 4 Dixon, Frederick, London.—Patent fuel. 101
- 5 Dudgeon, Arthur, Westminster, London.—Peat fuel, manufactured by the Irish Peat Fuel Co. 101
- 6 Lindley, Robert Charles, Mansfield, Nottinghamshire.—Stones from the Mansfield quarries. 102
- 7 Cwmorthin Slate Co. (limited), Portmadoc, North Wales.—Roofing slates. 102
- 8 Hunter, James, Aberdeen, Scotland.—Red polished granite monument. 102
- 9 Macdonald, Field, & Co., Aberdeen Granite Works, Aberdeen, Scotland.—Polished red granite monument. 102
- 10 Pen-yr-orsedd Slate Quarry Co. (limited), Carnarvon, North Wales.—Roofing slates, slate slabs, cisterns, ridges for roofs, billiard slabs, slate partly manufactured. 102
- 11 Shearer, Smith, & Co., Dalbeattie Granite Quarries, Scotland.—Scotch polished granite, and street paving blocks. 102
- 12 Bessbrook Granite Works, Bessbrook, Ireland.—Blue and gray Irish granites in headstones, monuments, and building work. 102
- 13 Great North of Scotland Granite Co. (limited), Peterhead, Scotland.—Monumental pedestal and vase in polished red granite. 102
- 13a Campbell, Hugh, & Son, Newry.—Polished granite. 102
- 14 Hollick & Co., Greenwich, London.—Portland cement. 103
- 15 Patent Selenitic Cement Co. (limited), London.—Method of preparing lime for mortar, for plastering and brickwork, and also for concrete. 103
- 16 Wouldham Cement Co., Wouldham-on-the-Medway, Kent, England.—Portland cement and its ingredients in different stages of manufacture. Concrete blocks and other objects made therefrom. 103
- 17 Lavers, Alfred Hamilton, London.—Portland cement, test blocks, cements, plaster of Paris, whiting. 103
- 17a Busse, G., & Co., London.—Cement. 103
- 18 Francis & Co., Cliffe Creek, Rochester.—Cements, cement concrete, parian scagliola, and decorated parian. 103
- 19 Grays Chalk Quarries Co. (limited) Grays, Essex.
 - a Chalk, whiting, kilndried chalk, gilders' whiting. 103
 - b Flint. 106
- 20 Eastwood & Co. (limited), London.—Portland cement. 103
- 21 Pike, William Joseph, Wareham, Dorsetshire.—Clays. 104
- 22 Harrison, George King, Lye & Brettell Lane Fire Clay Mines & Brick Works, Stourbridge, England.—Stourbridge fire clays. 104
- 23 Dunn, Robert, & Co., St. Austell, Cornwall.—China clay, in its raw material; samples for potting, bleaching, paper manufacturing, etc. 104
- 24 Oakley, John, & Sons, Wellington Mills, London.—Crude emery stone; grain emery; flour emery. 106
- 24a Star Plate & Universal Polishing Powder Co., London.—Plate and polishing powder. 106

Metallurgical Products.

- 25 Johnson, Matthey, & Co., London.—Articles in platinum; rare and precious metals. 110
- 26 Wigan Coal & Iron Co. (limited), Wigan, Lancashire.—Hematite, foundry, and forge pig iron. 111
- 27 Great Western Iron Co., Soudley Newnham.—Pig iron 111
- 28 West Cumberland Iron & Steel Co. (limited), Workington, Cumberland.—Pig iron, spiegeleisen, granulated blast furnace slag, Bessemer steel in the ingot; steel forgings, rails and rail sections, boiler and bridge plates, railway chairs, etc.; samples illustrating the testing of steel, and its metallurgy. 111

For classes of *examplis*, indicated by numbers at end of entries, see Classification, pp. 27-28.

Metallurgical Products.

- 29 Smith, Frederick, & Co., Caledonia Works, Halifax, Yorkshire.—Rope, rigging, telegraph, card, reed, and bonnet wire; iron in its various stages of manufacture into wire. 111
- 30 Houghton, William Dickson, Warrington.—Wire for special and general purposes. 111
- 30^a Tayler, D. F., & Co., New Hall Works, Birmingham.—Iron, steel, brass, and copper wire. 111
- 31 Edge & Sons, Coalport Works, Shropshire.—Wire ropes and chains for mining and engineering purposes. 111
- 31^a Hawksworth, Ellison, & Co., Carlisle Works, Sheffield.—Steel, and articles made therefrom. 111
- 32 Ash & Lacy, Globe Works, Staffordshire.—Galvanized, tinned, plain, and corrugated iron sheets; perforated zinc, metals, etc. 111
- 32^a Ward & Payne, Sheffield.—Steel. 111
- 32^b Whitwell, Thomas, Stockton-on-Tees.—Pig iron. 111
- 33 Cammell, Charles, & Co. (limited), Cyclops Steel & Iron Works, Sheffield.—Rolled iron armor plates. 111
- 34 Siemens, Charles William, London.—Specimens of iron and steel. 111
- 34^a Jessop, William, & Sons (limited), Sheffield.—Steel in bars, sheets, and large and small plates. 111
- 34^b Hatton, Sons, & Co., Bilston, Staffordshire.
^a Charcoal sheet iron. 111
^b Charcoal tin plates. 113
- 35 Baldwin, E. P. & W., Wilden Works, near Stourport.
^a Button and sheet iron black plates. 111
^b Tin andterne plates; tinned sheets. 113
- 35^a Warrington Wire Rope Works, Liverpool.—Wire ropes, cord, etc. 111
- 36 Brown, John, & Co. (limited), Atlas Steel & Iron Works, Sheffield.—Armor plates; naval engineering. (*In Machinery Hall.*) 111
- 37 Swansea Tin Plate Co., The Tin & Terne Plate-Manufacturers, Swansea Tin Plate Works, Swansea.—Tin andterne plates. 113
- 38 Nash, Henry, & Co., Liverpool.—Tin andterne plates, black plate, and patent continuous roofingterne plate. 113
- 39 Governor & Company of Copper Miners in England, London.—Tin andterne plates. 113
- 40 Morewood, E., & Co., Llanelly.
^a Tin andterne plates. 113
^b Machines for manufacturing tin andterne plate, and galvanized sheet iron. 113
- 41 Phosphor Bronze Co. (limited), London.—Phosphor bronze tools, locks, keys, tubes, wire, sheet, steam fittings, parts of machinery. 114

(*N. B. English Exhibits in this department are also installed in Agricultural Hall, and catalogued in that volume.*)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

NEW ZEALAND.

(North of New, Columns 10 to 17.)

Stone, Mining Products, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Parapara Iron & Coal Co., Nelson.
 - a Brown hematite ore. 100
 - b Coal from the Aorere river. 101
 - c Limestone used as a flux for hematite ore. 103
- 2 Johnstone Bros., Nelson.—Hematite iron ore. 100
- 3 Nelson Committee, Nelson.
 - a Iron, plumbago, galena, zinc blende, copper, antimony, and argentiferous lead ores. 100
 - b Coal from Coalbrookdale, Mount Rochester, and Reefton. 101
 - c Marble from Ruanukia, Golden Bay. 102
 - d Porcelain clays from Pakawau and Ruanukia; steatite from Golden Gully, Collingwood. 104
- 4 Louison, T. B., Nelson.—Iron ore, calcined iron ore. 100
- 5 Washbourn, W. E., Nelson.—Argentiferous lead ore. 100
- 6 Taranaki Committee.
 - a Titanic iron sand, older tertiary marl, trachyte pebbles, trachyte with crystals of hornblende, trachyte cast, hornblende, obsidian, nephrite, taranakite, carnelian. 100
 - b Lignite from Urenui. 102
 - c Potters' clay from Urenui. 104
- 7 Colonial Museum, Wellington.—James Hector, Director.
 - a Collection of minerals, containing magnetic iron, hematite, chrome, copper, lead, zinc, and manganese ores. 100
 - b Specimens illustrating the classification of New Zealand coals; petroleum from Sugar Loaf Point, Waipatu, Waipawa. 101
 - c Marble from Collingwood, Nelson. 102
 - d Steatite from Parapara Valley, Nelson. 104

- 8 Kennedy Brothers, Nelson.
 - a Coal from the Brunner Mine, and coke manufactured from it. 101
 - b Raw and ground fire clay. 104
- 9 Albion Coal Co., Nelson.—Coal from Ngakaua. 101
- 10 Reid, Alexander W., Canterbury.—Coal from Kowai Pass. 101
- 11 Oakden, J. J., Canterbury.—Anthracite coal from Lake Coleridge. 102
- 12 Rowley, Wilson, & Co., Otago.—Coal from Shag Point, Palmerston. 101
- 13 Ross, A., Poverty Bay, Auckland.—Petroleum. 101
- 14 Wilson, W., Christchurch.—Hewia white and yellow limestone. 102

Metallurgical Products.

- 15 New Zealand Commissioners.—Specimens of alluvial gold and gold-bearing quartz from Auckland, Westland, and Otago, collected by the Bank of New Zealand. 110
- 16 Government of New Zealand.—Specimens of alluvial gold from Nelson and Westland, and of auriferous quartz from the west coast; specimens of alluvial gold from Otago; bars of melted and refined gold; bars of chloride of silver, and silver; model representing gold exported from New Zealand 1866-75. 110
- 17 Nelson Committee.—Specimens of auriferous quartz from Reefton. 110
- 18 Reefton Committee.—Specimens of auriferous quartz from the Inangahua and Lyell districts, Nelson. 110
- 19 Tolhurst, George E., Bank of New Zealand, Wellington.—Models of gold ingots. 110

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

NEW SOUTH WALES.

(North of New, Columns 13 to 15.)

Minerals, Metallurgical Products, Mining Engineering.

Minerals, Ores, Stone, Mining Products.

- 1 McCallum, Argyle, Yaas.—Copper and lead ores from Woolgaroo Mine; iron ore from Bogolong. 100
- 2 Stuart, Seymour, C.—Auriferous quartz from Adelong; lode and stream tin ore. 100
- 3 King, P. G., Goonoo.—Sulphuret of antimony, from Nundle. 100
- 4 Howard, John, Sofala.—Antimony, from Crudine creek. 100
- 4a Dewhurst, Arthur, Tamworth.—Collection of minerals. 100
- 5 Coulter, Edward, Sydney.—Magnetic iron ore containing gold and copper, from Mount Lambie. 100
- 5a Cleghorn, Wm., Uralia.—Collection of minerals. 100
- 6 Department of Mines, Sydney.
a Mineralogical and geological collection; specimens of gold from the Southern, Western, and Northern districts; models of gold nuggets found in New South Wales; gold trophy, showing production of New South Wales. 100
- b Coal trophy. 100
- 7 Towns & Co., Sydney.—Kerosene shale from Murrumbidgee. 100
- 8 Fountain, John, Gosford, Brisbane Water.—Iron ore from Brisbane Water. 100
- 9 King, P. G., Goonoo Goonoo.—Lepidodendron fossils from Goonoo Goonoo. 100
- 10 Wilson, W., Monaltrie, Richmond river.—Fossils. 100
- 11 Butchart, J. Hawkins, Sydney.—Lode and stream tin ore. 100

- 12 Caddell, Alfred, Sydney.—Tin ore and wash dirt from Vegetable Creek Tin Mines. 100
- 13 New South Wales Shale & Oil Company, Sydney.—Kerosene shale. 100
- 14 Towns, R. & Co., Sydney.—Kerosene shale from Murrumbidgee. 100
- 15 Browne, Thomas, Bishop's Bridge.—Sandstone from West Maitland. 100
- 16 Douglass, W., Sydney.—Slate from a quarry near Goulburn. 100
- 17 Young, John, Sydney.—Granite from Moruya; marble. 100
- 18 Mackintosh & Oakes, Bathurst.—Kaolin. 100
- 19 Warden, David, Ulladulla.—Kaolin. 100

Metallurgical Products.

- 19a Lithgow Valley Iron & Coal Co.—Iron. 113
- 20 New South Wales Commissioners.—Copper ingots. 113
- 21 Moore & Co., Sydney.—Tin ingots. 113
- 22 Vegetable Creek Company, Sydney.—Tin ingots. 113
- 23 New South Wales Commissioners.—Tin ingots, bars, and grain tin. 113

Mining Engineering.

- 24 Caddell, Alfred, Sydney.—Model of shaft of Vegetable Creek Tin Mine, and report, plan, and photographs. 121
- 25 Government Printing Office, Sydney, New South Wales.—Mines and mineral statistics. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-43.

VICTORIA.

(North of New, Classes 11 to 13.)

Minerals, Ores, Stone, Mining Products.

Minerals, Ores, Stone, Mining Products.

- 1 Collection of Rocks, Minerals, and Fossils, illustrative of the geology, mineralogy, and mining resources of Victoria, exhibited for, and on behalf of the Government, by R. Brough Smyth, F.G.S., F.L.S., Assoc. Inst. C.E., Secretary for Mines, and Chief Inspector of Mines for the colony. 100
- a Older igneous or plutonic rocks.
- b Newer igneous or volcanic rocks.
- c Aqueous rocks.
- d Upper silurian.
- e Upper palaeozoic.
- f Mesozoic-carbonaceous.
- g Tertiary.
- h Collection of mineral specimens.
- i Economic collection: auriferous quartz.
- k Fac-similes of gold nuggets found in Victoria.
- l Economic minerals.
- m Fossil fruit.
- 2 Acadia Catherine Gold Mining Company, Sandhurst.—Golden stone. 100
- 3 Bleasdale, J. I., Melbourne.—Collection of gems and precious stones, consisting of diamonds, blue sapphires, oriental emeralds, rubies, aqua-marines, topazes, spinels, beryls, opals, garnets, tourmalines, etc. 100
- 4 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—
 - a Fac-similes of nuggets found in Victoria, and mineralogical and geological specimens. 100
 - b Coal. 101
 - c Sawn slate, block of granite, polished marble. 102
 - d Limestones from Major Plains. 103
 - e Black clay, clay and sand; kaolin clay. 104
 - f Sharpening stones from Wangunyah. 106
- 5 Costerfield Gold & Antimony Mining Co., Melbourne.—Antimony ore. 100

- 6 Hancaker, J. H. H., Melbourne.—Nickel ore from the Boa Kaine Mine New Caledonia. 100
- 7 McGie, James, & Co., Melbourne.—Nickel ore. 100
- 8 Shenaudoah Gold Mining Co., Sandhurst.—Gold-bearing quartz. 100
- 9 Mining Department of Victoria, Melbourne.—Coal. 101
- 10 Mansfield Shire Council, Mansfield.—Polished marble, hewn sandstone. 102
- 11 Arthur & Dogherty, New Zealand.—Lithographic stone. 106
- 12 Lewis & Whitty, Fitzroy.—Knife polish. 106
- 13 Hattersley, J., Yackandandah.—Aerated waters. 107
- 14 Lyon, George, Spring Creek, Beechworth.—Lemonade, soda water, and ginger ale. 107
- 15 Rowlands & Lewis, Ballarat.—Tonic potass, soda, lithia, and seltzer waters, and ginger ale. 107

Metallurgical Products.

- 16 Bright Bros. & Co., Melbourne.—Star antimony in ingots. 113
- 17 Costerfield Gold & Antimony Mining Co., Melbourne.—Antimony. 113
- 18 Hodgson, Richard, Collingwood.—Star antimony, pig-lead, block tin. 113
- 19 Croaker, Scott, & Co., Melbourne.—Star antimony. 113

Mining Engineering.

- 20 Smyth, R. Brough, Department of Mines, Melbourne.—Geological maps, reports, etc. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

BAHAMAS.

(South of Nave, Columns 15 to 17.)

Minerals, Ores, Stone, Mining Products.

Minerals, Ores, Stone, Mining Products

1 Dupuch, Joseph.—Building stone.

200

2 George, Jno. S.—Building stone.

200

BERMUDAS.

(North of Nave, Columns 15 to 17.)

Minerals, Ores, Stone, Mining Products.

Minerals, Ores, Stone, Mining Products.

1 Bermuda, Government of.—Top of a pillar of stalagmite, and a small stalactite from a submerged cave.

200

2 Ness, Ph.—Building stones.

200

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

QUEENSLAND.

(North of North Avenue, Columns 10 to 15.)

Mineral and Metallurgical Products, Mining Engineering.

Minerals, Ores, Stone, Mining Products.

- 1 Aplin, D.—Trophy of tin ores. 100
- 2 Brisbane Tin Mining Co.—Tin ores, wash dirt, etc. 100
- 3 Cloncurry Mine, Proprietors of.—Manganese. 100
- 4 Daintree, Richard.—Collection of rocks, soils, and fossils illustrative of the colony. 100
- 5 Foote, Alfred.—Iron ores from West Moreton. 100
- 6 Gregory, A. C.—Antimony ores. 100
- 7 Henry, Captain.—Nugget of native copper. 100
- 8 Hume, W. C.—Collection of tin ores. 100
- 9 Mount Marley Tin Mining Co.—Collection of tin ores. 100
- 10 Perry, Matthew.—Copper pyrites. 100
- 11 Staiger, C.—Antimony ores. 100
- 12 Tyrrell, J. de F.—Tin ores. 100
- 13 Wilkinson Mine, Proprietors of.—Cinnabar. 100
- 14 Government of Queensland.
 - a Copper ores, fossils, etc., from Ipswich; quartz and gold bearing stone from Gympie, Rockhampton, Ravenswood, Cawarrol, Palmer, Cloncurry, etc. 100
 - b Coal from Ipswich. 101
 - c Building stone. 102
 - d Plumbago. 105
- 5 Aberdare Mine, Proprietors of.—Coal. 101
- 16 Alexander, W. R.—Coal. 101
- 17 Allora Mine, Proprietors of.—Coal. 101
- 18 Bingera Mine, Proprietors of.—Coal. 101

- 19 Blackfellows' Creek Mine, Proprietors of.—Coal. 101
- 20 Bland & Wright, Perseverance Mine.—Coal. 101
- 21 Flagstone Creek, Proprietors of.—Coal. 101
- 22 Gulland & Co., Ipswich.—Coal and coke. 101
- 23 Rosewood Mine, Proprietors of.—Coal. 101
- 24 Tivoli Mine, Proprietors of.—Coal and coke. 101
- 25 Peak Downs Copper Mining Co.—Slab of polished malachite. 102

Metallurgical Products.

- 26 Government of Queensland.
 - a Gold, in nuggets, from Gympie, Rockhampton, Ravenswood, Cawarrol, Palmer, Cloncurry, etc. 110
 - b Tin in ingots. 113
- 27 Government of Queensland.—Refined copper. 112
- 28 Mount Perry Copper Mining Co.—Ingots of copper. 112
- 29 Peak Downs Copper Mining Co.—Trophy of copper ingots. 112
- 30 Bulimba Tin Smelting Co.—Refined tin, in ingots. 113
- 31 Mount Marley Tin Co.—Refined tin, in ingots. 113
- 32 Queensland Smelting & Assaying Co.—Trophy of tin ingots. 113

Mining Engineering.

- 33 Clifton Mine, Proprietors of.—Fossils, kaolin, etc., showing strata of mine. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

TASMANIA.

(South of North Avenue, Columns 13 to 15.)

Minerals, Ores, Stone, Mining and Metallurgical Products.

Minerals, Ores, Stone, Mining Products

- 1 British & Tasmanian Charcoal Iron Co.—Iron ores. 100
- 2 Hammond, W., Hobart Town.—Bismuth, from Mount Ramsey. 100
- 3 Harrap, A., Launceston.—Petrified wood. 100
- 4 Hull, Henry J., Hobart Town.—Tin ore, from George's Bay. 100
- 5 Innes, J. H., Hobart Town.—Tin ore, from Rongarooma. 100
- 6 Just, T. C., Launceston.—Iron ores and asbestos. 100
- 6a Royal Society of Tasmania.—Topazes and beryls from Bass's Straits Island. 100
- 7 Smart, Dr., Hobart Town.—Gold, in quartz. 100
- 8 Smith, James, Launceston.—Bismuth, from Mount Ramsey. 100
- 9 Stanhope Company.—Tin ore. 100
- 10 Harcourt, James, Hobart Town.
 - a Iron ores. 100
 - b Coal from Seymour. 101

- 11 Hematite Iron Works, West Tamar.
 - a Iron ores. 100
 - b Blue and white marble limestone. 100
- 12 Lyell & Gowan, Melbourne.
 - a Tin ore from Mount Bischoff. 100
 - b Coal from river Don. 101
 - c Slate from Piper's river. 102
 - d Marble limestone from river Don. 103
- 13 Groom, F., Harefield.—Coal. 101
- 14 Hurst, J., Hobart Town.—Coal from Tasman's Peninsular. 101
- 15 Kermode, W. A., Mona Vale.—Gray and brown freestone. 102
- 16 Raynor, E., Bridgewater.—Limestone, with fossils. 102
- 17 Coverdale, John, Port Arthur.—Pipe clay. 104

Metallurgical Products.

- 18 Harcourt, James, Hobart Town.—Pig iron and castings. 111
- 19 Hematite Iron Works, West Tamar.—Pig iron and castings. 111
- 20 Mount Bischoff Tin Mining Co., Mount Bischoff.—Tin, in ingots. 113

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

INDIA.

(North of Nave, Columns 22 to 25.)

Minerals, Ores, Stone, Mining and Metallurgical Products.

Collections selected from the India Museum by J. FORBES WATSON, M.A., M.D., LL.D., DIRECTOR OF THE INDIA MUSEUM, &c.

Minerals, Ores, Stone, Mining Products.

a Iron ores and magnetic iron sand from the Madras Presidency; iron ores from the Bombay Presidency; iron ores and magnetic iron sand from the Bengal Presidency; chrome iron ores from Salem and South Arcot; manganese ores from the Madras Presidency; copper ores from Nellore, Singbhum, and Deoghur; copper pyrites from the hills of Beloochistan; malachite from Central India; lead ore from Deoghur; galena from the Malanna and Parbutti mines, and from Cutloor, Karnul, Chota Nagpur, Duttiah, Hazaribagh, and Beloochistan; (stibnite antimony ore) from Shigri, Busoh, Borneo, and Sarawak; tin stone from Junk Ceylon, Malacca, Kuhn, Mergul, Tenasserim, Larut, and Johore; gold sand from Putulia, Toradanally, Dandput, Rangoon, and Ramagherry; arsenical ores from Pegu, Burmah, Tenasserim, Bengal, and Madras; sulphur from Rangoon and Shorums. 100

b Coal from Nerbudda Coal and Iron Co., Gaffrawarra, Oormoo, Chigo, and Malacca; lignite from Darjiling; petroleum and asphaltum from Burmah. 101

c Limestone from South Arcot, Nellore, Tripattur, Masutipattam, and Beronda; calcite from Rangun; calc spar from

Kabul; selenite from Ava; white mica from Salem; black mica from Behar; agalmatolite from Chota Nagpur; zeolites from Deccan; lime from Bownee, Salem, Bellary, and Soonporah. 103

d Clays, for pottery, from South Arcot, Madura, North Arcot, Sadigeri, Bangalore, and Vizianagram; powdered mica from Lahore; quartz, yellow and red ochre, fire and china clays from Madras; ball clay from Mangalore and Raepore; raw, fine white, and prepared clay, powdered marble, red lead and red ochre from Puttan; litharge from Calcutta; white lead from Punjab; white earth from Beronda; geroo from Raepore; pink and yellow earth from Paldeo; white earth from Punnah; yellow earth from Alipore; pipe clay from Singapore; red clay from Duttiah; white earth from Kotee; fullers' earth from Sind. 104

e Graphite from Caviatten Coodul, Trevandrum, Almora, and Ceylon. 105

f Corundum from Madras, Salem, and Mysore; agates and carnelians from Cambay; gem sand from Ceylon; ruby sand from Travancore; rough garnets from Mysore and Vizianagram; calderite from Nepal; tourmaline from Nellore; epidote granite from Madras. 107

g Fibrous gypsum from Karnul; reh from Butiana. 107

Metallurgical Products.

h Crude iron from Assam; Wootz steel; native iron; native iron with slag. 111

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

CANADA.

(North of Nave, Columns 16 to 23.)

Minerals, Ores, Stone, Mining and Metallurgical Products.

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| <p>Minerals, Ores, Stone, Mining Products.</p> <p>1 Gatling Gold Mining Co., Marmora, Ont.—Gold-bearing arsenical pyrites. 100</p> <p>2 Russell, W. W., Ottawa, Ont.—Gold in quartz. 100</p> <p>3 Lindsay, J. A., Toronto, Ont.—Gold, silver, and magnetic ores. 100</p> <p>4 Jackfish Lake Gold Mining Co., Toronto, Ont.—Gold and silver, in quartz. 100</p> <p>5 McKellar Bros., Prince Arthur's Landing, Ont.—Gold, in quartz. 100</p> <p>6 McKellar, D., Prince Arthur's Landing, Ont.—Gold, in quartz. 100</p> <p>7 Toronto Gold Mining Co., Toronto, Ont.—Gold-bearing arsenical pyrites. 100</p> <p>8 Lockwood, W. P., St. Francois, Q.—Model of gold nugget. 100</p> <p>9 Geological Survey, Canada, Q.</p> <p> a Quartz, magnetic sand, and alluvial gold, models of gold nuggets, platinum, copper pyrites, native copper, magnetite, magnetic iron sand, hematite, iron ores, iron pyrites, native iron, antimony ore, galena, blende, barytes, mica, magnesite, kermesite, celestine, albite, orthoclase, asbestos, amethyst, agates, and Canadian rocks. 100</p> <p> b Coal from Saskatchewan river, bituminous shale, crude and inspissated petroleum. 101</p> <p> c Sandstones, marbles, marble column, dolomite, limestone, syenite, granite, gneiss, labradorite, jasper conglomerate, ornamental and polished slate, cut and polished stones. 102</p> <p> d Hydraulic cement, gypsum. 103</p> <p> e Clay, fire clay, clay for moulding, river and moulding sand, soapstone. 104</p> <p> f Graphite. 105</p> <p> g Lithographic stones, grindstones, whetstones, burr stones, granite for millstones. 106</p> <p> h Brine, mineral water, phosphate of lime, shell marl. 107</p> <p>10 Oppenheimer Bros., Victoria, Br. Col.—Gold nugget. 100</p> <p>11 Robertson, Robt., Halifax, N. S.—Representation of the gold fields of Nova Scotia. 100</p> <p>11a Morton, George, Frontenac Lead Minc.—Pig lead. 100</p> <p>12 Donaldson, T. B., Oldham, N. S.—Gold in quartz. 100</p> <p>13 Sibley, A. H., Silver Islet, Ont.—Silver ores and native silver. 100</p> <p>13a Moody & Nelson, Victoria, B. R.—Native copper. 100</p> <p>14 McKellar Bros., Fort William, Ont.—Silver ores, native silver, copper pyrites, and barytes. 100</p> | <p>15 Marks, T., & McKellar Bros., Fort William, Ont.—Silver ores. 100</p> <p>16 Dawson, S. J., Ottawa, Ont.—Silver ores. 100</p> <p>16a Simpson, John, Upham, N. B.—Manganese. 100</p> <p>17 Cyrette, Ambrose, Fort William, Ont.—Silver ores. 100</p> <p>18 Van Norman, Lodge, Prince Arthur's Landing, Ont.—Native silver and silver ores. 100</p> <p>19 Plumber, McIntyre, & Russ, Fort William, Ont.—Silver ores. 100</p> <p>19a Jones, T. R., & Co., St. John, N. B.—Copper ore. 100</p> <p>20 Eames, Prof., Pie Island, Ont.—Silver veinstone. 100</p> <p>21 Stephen, George, Montreal, Q.—Silver ores. 100</p> <p>22 Eureka Mining Co., Victoria, Br. Col.—Silver ores. 100</p> <p>23 Mechanics' Institute, North Westminster, Br. Col.</p> <p> a Platinum. 100</p> <p> b Anthracite. 101</p> <p>24 West Canada Mining Co., Wellington, Ont.—Copper pyrites, copper ore. 100</p> <p>25 Hime, H. L., Toronto, Ont.—Copper pyrites. 100</p> <p>26 Plumber, B., Bruce Mine, Ont.—Copper pyrites. 100</p> <p>27 Oliver, Geo., Perth, Ont.—Copper pyrites, bog iron ore. 100</p> <p>28 Ontario Advisory Board, Toronto, Ont.</p> <p> a Copper pyrites, magnetic hematite, galena. 100</p> <p> b Serpentine, syenite. 102</p> <p> c Graphite. 105</p> <p> d Emery. 106</p> <p> e Phosphate of lime, shell marl. 107</p> <p>29 Shaw, P., Harvey Hill, Q.—Copper pyrites. 100</p> <p>30 Stewart, W. W., Montreal Q.—Native copper. 100</p> <p>31 Douglas, Dr., Quebec, Q.—Copper ore. 100</p> <p>32 Davidson, Wm., Alma, N. B.—Copper glance. 100</p> <p>33 Russell, Grand Manan, N. B.—Copper glance. 100</p> <p>34 Cole, Rufus, Dorchester, N. B.—Copper glance. 100</p> <p>35 Sweet, R. J., Halifax, N. S.—Copper glance. 104</p> <p>36 Lloyd, H. C., Madoc, Ont.—Magnetite, hematite. 100</p> |
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Mining and Metallurgy.

- 37 Ledyard, T. D., Toronto, Ont.—Magnetite. 100
- 38 Haycock, Will., Templeton, Q.—Magnetite. 100
- 39 Cobourg & Petersboro' Iron Co., Belmont, Ont.—Magnetite. 100
- 40 Bishop, A., Bell's Corners, Ont.—Magnetite. 100
- 41 Foley, James, Bathurst, Ont.—Magnetite with apatite. 100
- 42 Baldwin, A. H., Hull, Q.—Magnetite. 100
- 43 Chipman, David, Berwick, N. S.—Magnetite. 100
- 44 Lewis, Queen Charlotte's Island, Br. Col.—Magnetite. 100
- 45 Cowan, A., Brockville, Ont.
Hematite, burnt iron pyrites. 100
Phosphate and superphosphate of lime. 107
- 46 Crawford, J. D. & Co., Montreal, Q.—Hematite, spathic iron ore. 100
- 47 Gauthier, O., St. Urbain, Q.—Titanic iron ore. 100
- 48 Matheson & Gillice, Sydney, N. S.—Hematite. 100
- 49 Ottawa Iron & Steel Co., Ottawa, Ont.—Iron ore. 100
- 50 Stobie, James, Sault St. Marie, Ont.—Iron ore. 100
- 51 Duval, H. H., Quebec, Q.—Titanic iron ore. 100
- 52 McDougall, John, Three Rivers, Q.—Bog iron ore. 100
- 53 Steel Co. of Canada, Londonderry, N. S.—Iron ores. 100
- 54 MacKinnon, J. C., Whycocomagh, N. S.—Iron ores. 100
- 55 Duhamel, Dr., Quebec, Q.—Iron pyrites. 100
- 56 Russell, Willis, Lotbiniere, Q.—Antimony ore. 100
- 57 Hibbard, F., Prince William, N. B.—Antimony ore. 100
- 58 Hime, L. H., Toronto, Ont.—Galena and copper pyrites, with silver and gold. 100
- 59 Sibley, Col., & McIntyre, J., Silver Islet, Ont.—Galena. 100
- 60 Johnson, C. J., Wallaceburg, Ont.—Galena, blende. 100
- 61 Devine, Thos., Toronto, Ont.—Galena. 100
- 62 Wearne, Capt., Toronto, Ont.—Galena, blende. 100
- 63 Markham, A., Hammond, N. B.—Pyrolusite. 100
- 64 Brown, J., N. S.—Pyrolusite. 100
- 65 Galway Lead Mining Co., Galway, Ont.—Barytes, calc spar. 100
- 66 Dolphin Manufacturing Co., Five Islands, N. S.—Barytes. 100
- 67 Starr, John, Halifax, N. S.—Barytes. 100
- 68 Baker Mine, North Burgess, Ont.—Mica in plates. 100
- 69 Ackerly, James, Five Islands, N. S.—Dogtooth spar. 100
- 70 Dopp, Geo., Berlin, Ont.—Amethyst, fluor spar, and pyrites. 100
- 71 McVicar, Geo., Toronto, Ont.—Amethyst. 100
- 72 Blackwood, R., Toronto, Ont.—Amethyst, fluor spar, and pyrites. 100
- 73 Morrison, W. A., Toronto, Ont.—Collection of Canadian precious stones. 100
- 74 Poole, H. S., Halifax, N. S.—Ores and associated rocks. 100
- 75 Honeymann, Dr., Halifax, N. S.—Collection of Nova Scotia rocks. 100
- 76 Bailey, G., Grand Lake, N. B.—Coal. 101
- 77 Hall, William, Springhill, N. S.—Coal. 101
- 78 Mitchell, Henry L., Glace Bay Mines, N. S.—Coal. 101
- 79 McQueen, Wm., Blockhouse Mines, N. S.—Coal. 101
- 80 Brown, R. H., Sydney Mines, N. S.—Coal. 101
- 81 McDonald, R. A., International Mines, N. S.—Coal. 101
- 82 McKeen, David, Caledonia Mines, N. S.—Coal. 101
- 83 Archibald, T. D., Gowrie Mines, N. S.—Coal. 101
- 84 Sutherland, James, Big Glace Bay, N. S.—Coal. 101
- 85 Fraser, J. W., Victoria Mines, N. S.—Coal. 101
- 86 Routledge, William, Gardiner Mines, N. S.—Coal. 101
- 87 Campbell, C. J., North Campbellton, N. S.—Coal. 101
- 88 Hoyt, Jesse, Acadia Mines, N. S.—Coal. 101
- 89 Hudson, James, Albion Mines, N. S.—Coal. 101
- 90 Simpson, Robert, Intercolonial Mines, N. S.—Coal. 101
- 91 Greener, John, Vale Colliery, N. S.—Coal. 101
- 92 Bennett, Wm., Scotia Mines, N. S.—Coal. 101
- 93 Sterling, E., Cape Breton, Big Glace Bay, Sydney, and L. Mines, N. S.—Coal. 101
- 94 Union Mining Co., Union Mines, Comox, Br. Col.—Coal. 101
- 95 Baynes Sound Mining Co., Baynes Sound Mines, Br. Col.—Coal. 101
- 96 Vancouver Mining Co., Vancouver Mines, Br. Col.—Coal. 101
- 97 Wellington Mining Co., Wellington Mines, Br. Col.—Coal. 101
- 98 Ketchum, E. K., Albert Mines, N. B.—Albertite and bituminous shale. 101
- 99 Byers, J., Albert Mines, N. B.—Albertite. 101
- 100 Smith, Wm., Toronto, Ont.—Peat. 101
- 101 Griffin, R. A., Huntingdon, Q.—Peat. 101
- 102 Belliveau Albertite & Oil Co., Westmoreland, N. B.—Albertite mineral oil. 101
- 103 Waterman Bros., London, Ont.—Petroleum and products. 101
- 104 Gibson, Robert L., Grimsby, Ont.—Building sandstones. 101

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Mineral Water, Metallurgical Products.

- 110 Farquhar & Booth, Esquesing, Ont.—Building sandstones and flagging. 102
- 111 Skead, Gloucester, Ont.—Building sandstones. 102
- 112 Londley, Beckwith, Ont.—Building sandstones. 102
- 113 Rankin, John, Pembroke, Ont.—Building sandstones. 102
- 114 Bishop, Henry, Nepean, Ont.—Building sandstones. 102
- 115 Decew, William, Oneida, Ont.—Building sandstones. 102
- 116 McGregor, Lachute, Q.—Building sandstones and limestones. 102
- 117 Goodfellow, Joseph, North Esk, N. B.—
a Building sandstones. 102
b Grindstones. 106
- 118 Dor. U. Free Stone Co., Budreau, Vil., N. B.—Building sandstones. 102
- 119 Caledonia Free Stone Co., Rockland, N. B.—Building sandstones. 102
- 120 Roberts & Co., Mary's Point, N. B.—Building sandstones. 102
- 121 Bayview Quarry Co., Albert City, N. B.—Building sandstones. 102
- 122 Hopewell Quarry Co., Shepody Mt., N. B.—Building sandstones. 102
- 123 McQuarrie, John, George River, N. S.—Building sandstones. 102
- 124 Gilpin, Edwin, Springville, N. S.—
a Building sandstones. 102
b Limestone. 103
c Fire brick and fire clay. 104
- 125 Heustis, R. B., Wallace, N. S.—Building sandstones. 102
- 126 McDonald, George J., Cornwallis, N. S.—Building sandstones. 102
- 127 Peters, Henry S., Halifax, N. S.—Building sandstones. 102
- 128 Vancouver Coal Co., Vancouver Island, Br. Col.—Building sandstones, marble, limestone. 102
- 129 Howley, James, Montreal, Q.—
a Building and flagging sandstones. 102
b Sandstone for glass-making. 104
- 130 Pitton & Co., Quebec, Q.—Sandstone, flagging, curbstones. 102
- 131 Worthington & Co., Montreal, Q.—
a Polished marble. 102
b Limestone. 103
- 132 Somerville, P. T., Arnprior, Ont.—Marble monument. 102
- 133 Halon, Alphonse, Quebec, Q.—Marble. 102
- 134 Benjamin, H., & Co., Montreal, Q.—
a Marble. 102
b Lime. 103
- 135 Brunet, Joseph, Montreal, Q.—Marble monument. 102
- 136 Langevin, A. B., Quebec, Q.—Marble. 102
- 137 Silver, John, Halifax, N. S.—Marble. 102
- 138 McQuarrie, John, George River, N. S.—Marble and syenite. 102
- 139 Ingram, Wm., St. George, N. B.—Red granite clock case. 102
- 140 Baxter, B., Cayuga, Ont.—
a Dolomite. 102
b Lime and limestone, hydraulic cement. 103
- 141 Barclay & Morrison, Stony Mount Manitoba.
a Dolomite. 102
b Clay. 104
- 142 Hayslip, John, Goderich, Ont.—Limestone. 102
- 143 Young, Y. & G., Gloucester, Ont.—Limestone. 102
- 144 Levallee, N., Carleton Place, Ont.—Limestone. 102
- 145 Kirkpatrick Quarry, Parrsboro', Q.—Limestone. 102
- 146 Forsyth, Robert, Montreal, Q.—Red granite monument. 102
- 147 Bay of Fundy Red Granite Co., St. George, N. B.—Red polished granite. 102
- 148 Danville School Slate Co., Danville, Q.—Ornamental slate panels, slates in blocks. 102
- 149 Danville Slate Co., Danville, Q.—School slates. 102
- 150 Rockland Slate Quarry, Melbourne, Q.—Slates. 102
- 151 DeCew, William, Cayuga, Ont.—
a Lime and limestone. 103
b Sandstone for glass-making and furnace lining. 104
- 152 Whitson & Slater, St. Marys, Ont.—Lime and limestone. 103
- 153 Dunbar, George, Rockwood, Ont.—Lime and limestone. 103
- 154 Lewis, Levi, Kincardine, Ont.—Lime and limestone. 103
- 155 Buxton, George, Goderich, Ont.—Lime and limestone. 103
- 156 Emsley, R., Guelph, Ont.—Lime and limestone. 103
- 157 Ballantyne, Mrs., Galt, Ont.—Lime and limestone. 103
- 158 Farquhar, E. & C., Dundas, Ont.—Lime and limestone. 103
- 159 Goudie, Thomas, Limehouse, Ont.—Lime and limestone. 103
- 160 Lavallee, N., Carleton Place, Ont.—Lime and limestone. 103
- 161 Baker, W., Arnprior, Ont.—Lime and limestone. 103
- 162 Quebec Advisory Board, Quebec, Q.—
a Lime and limestone. 103
b Porcelain clay. 104
c Phosphate of lime, chalk. 107
- 163 Garvies, C. A., Montreal, Q.—Lime and limestone. 103
- 164 Robitaille, Dr., Quebec, Q.—
a Limestone. 103
b Marl. 107
- 165 Quesnal, Sheriff, Arthabaska, Q.—Lime and hydraulic cement. 103
- 166 Douglas, David, Pugwash, N. S.—Lime. 103
- 167 Goudie, Thomas, Limehouse, Ont.—Hydraulic cement. 103
- 168 McKay, Wm., Ottawa, Ont.—Hydraulic cement and artificial stone. 103
- 169 Buchanan Mineral Co., Hamilton, Ont.—Cement and mastics. 103
- 170 Gauvreau, P., & Co., Quebec, Q.—Cements and plasters, artificial stone. 103
- 171 Hill, Albert J., Sydney, N. S.—Selenite. 103

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Minerals, Stone.

- 172 Gregory, V. R., & Co., Toronto, Ont.—Artificial stone monument. 103
- 173 Wandly, Henry, Clover Hill, Toronto, Ont.—Artificial stone. 103
- 174 Milner & Herd, Strathroy, Ont.—Artificial stone window cap. 103
- 175 Joslyn, J. H. L., Box 153, Tilsonburg, Ont.—Marble roofing, a seamless sheet of artificial stone, not excessively heavy, but wonderfully efficient; not resting on the roof boards, but accommodated to them by an intervening plastic waterproof composition. 103
- 176 Riggins, George, Kincardine, Ont.—Clay for bricks. 104
- 177 Russell, Samuel, London, Ont.—Clay for bricks. 104
- 178 Munn & Cochner, Dundas, Ont.—Clay for bricks. 104
- 179 Leslie, Robert, Glenwilliam, Ont.—Clay for bricks. 104
- 180 Townshend, Mrs. Mary, Rockville, Ont.—Clay for bricks. 104
- 181 Anderson, Thos., Nepean, Ont.—Clay for bricks. 104
- 182 Cashmore, Thos., Pembroke, Ont.—Clay for bricks. 104
- 183 McGregor, Daniel, Pembroke, Ont.—Clay for bricks. 104
- 184 Baker, William, Arnprior, Ont.—Clay for bricks. 104
- 185 Fosbick, Eneas, Ramsay, Ont.—Clay for bricks. 104
- 186 Moore, Gilbert, Ramsay, Ont.—Clay. 104
- 187 Coulter, James, Ramsay, Ont.—Clay. 104
- 188 Metcalfe, James, Ramsay, Ont.—Clay. 104
- 189 Foster, W. A., Belleville, Ont.—Clay. 104
- 190 Workman, Hugh, Brantford, Ont.—Clay. 104
- 191 Peel, Thos. W., Montreal, Q.—Clay. 104
- 192 Mochan, Albert, St. Johns, Q.—Clay. 104
- 193 Jackson, Charles, Woodstock, N. B.—Clay. 104
- 194 Wells, William, Beamsville, Ont.—Pottery clay. 104
- 195 Ahren, J. H., Paris, Ont.—Pottery clay. 104
- 196 Pratt, Charles, London, Ont.—Pottery clay. 104
- 197 Farrar, G. H. & L. E., St. Johns, Q.—Pottery clay. 104
- 198 Bell, David, St. Johns, Q.—Clay drain tile. 104
- 199 Copeland & McLaren, Montreal, Q.—Fire clay, sandstone facing for furnaces. 104
- 200 McMann, G. N., Grand Lake, N. B.—Fire clay. 104
- 201 Bannerman, Robert, Montreal, Q.—Pipe clay. 104
- 202 St. Johns Stone Chinaware Co., St. Johns, Q.—Fire brick. 104
- 203 Bishop, H., Nepean, Ont.—Sandstone for glass-making. 104
- 204 McDougall, John, & Sons, Three Rivers, Q.—Sandstone for furnace lining. 104
- 205 Oil Cloth Factory, Yorkville, Ont.—Sand. 104
- 206 Jackson, Charles, Woodstock, N. B.—Brick sand. 104
- 207 Sweet, S. H., Wentworth, N. S.—Kaolin. 104
Gypsum. 107
- 208 McDonald, George J., Cornwallis, N. S.—Refractory stone. 104
- 209 Law, John, London, Ont.—Black lead crucible. 105
- 210 Dominion of Canada Plumbago Co., office, Ottawa, Ont.; mines and works, Buckingham, Province of Quebec.—Manufacturers of electrotyping, lubricating, pencil, crucible, stove polish, and other stock of every grade. Assays and tests prove quality. Prices are ordinary current market rates. 105
- 211 Millet, John G., Grenville, Q.—Graphite. 105
- 212 Montreal Plumbago Mining Co., Montreal, Q.—Stove polish. 105
- 213 Martin, Charles, Montreal, Q.—Stove polish. 105
- 214 Kelly, John, Belleville, Ont.—Lithographic stones. 106
- 215 Ontario Lithographic Stone Co., Marmora, Ont.—Lithographic stone. 106
- 216 Read, Stevenson, & Co., Dorchester, N. B.—Grindstone polishing and cutters' stone. 106
- 217 Seaman & Co., Lower Cove, N. S.—Grindstones. 106
- 218 Douglass, David, Port Phillip, N. S.—Grindstones. 106
- 219 Leroux, G., Quebec, Q.—Millstones. 106
- 220 Casgrain, Stoneham, Q.—Tripoli. 106
- 221 Fisher, W., Victoria, Br. Col.—Tripoli. 106
- 222 Coleman, William, Paris, Ont.—Raw and prepared gypsum. 107
- 223 Ontario Plaster Co., Mt. Healy, Ont.—Raw and prepared gypsum. 107
- 224 Converse, John A., Montreal, Q.—Raw and prepared gypsum. 107
- 225 Brown, A., Petitcodiac, N. B.—Gypsum and selenite. 107
- 226 Tobique Gypsum Co., Tobique, N. B.—Gypsum. 107
- 227 Albert Manufacturing Co., Hillsboro, N. B.—Calcined and anhydrous gypsum; alabaster. 107
- 228 McDonald, R. N., International Museum, N. S.—Gypsum. 107
- 229 Nova Scotia Advisory Board, Halifax, N. S.—Gypsum. 107
- 230 Davidson, H. A., Black River, N. S.—Gypsum. 107
- 231 Cove, Jas. A., Claremont Hill, N. S.—Gypsum. 107
- 232 Fulton, C. A., Wallace, N. S.—Gypsum. 107

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Minerals, Metallurgical Products.

- 232^a Meighen Bros., Perth, Ont.—
Phosphate of lime. 107
- 233 McLennan, Jos., Montague, N. S.
—Gypsum. 107
- 234 Merchants' Salt Co., Seaforth, Ont.
—Brine. 107
- 235 International Works, Goderich,
Ont.—Brine. 107
- 236 Ransford, H., Clinton, Ont.—
Brine. 107
- 237 Tecumseh Works, Goderich, Ont.
—Brine. 107
- 238 Gray, Young, & Spalding, Seaforth,
Ont.—Brine. 107
- 239 Jourvie, J. A., & Co., Caledonia
Springs, Ont.—Saline, gas, and sulphur
waters. 107
- 240 Winning, Hill, & Ware, Montreal,
Q.—Carratraca water. 107
- 241 Gee, J. N., St. Francis Spring, Q.—
Mineral water. 107
- 242 Hickman, James S., Amherst, N.
S.—Saline water. 107
- 243 Murray, Edmund W., Bucking-
ham, Q.—Phosphate of lime. 107
- 244 Buckingham Mining Co., Bucking-
ham, Q.—Crystal phosphate of lime. 107

Metallurgical Products.

- 245 Silver Islet Co., Silver Islet, Ont.—
Ingot of silver. 110
- 246 Ottawa Iron & Steel Manufactur-
ing Co., Ottawa, Ont.—Iron billets. 111
- 247 Field & Aydon Patent Smelting
Co., Marmora, Ont.—Pig iron, smelted
with pure petroleum. 111
- 248 Gauthier, O., St. Urbain, Q.—Ti-
tanic pig iron. 111
- 249 McDougall, John, & Sons, Three
Rivers, Q.—Charcoal iron; iron bars, bent
and twisted cold; axes, tomahawk,
slag. 111
- 250 Canadian Titanic Co., Baie St.
Paul, Q.—Slags, titanic iron. 111
- 251 Chénic Eugene, Quebec, Q.—Viger
steel. 111
- 252 Moisie Iron Works, Montreal, Q.—
Iron, iron bloom. 111
- 253 McDougall, John, Montreal, Q.—
Iron bloom, car-wheels. 111
- 254 Steel Co. of Canada, Londonderry,
N. S.—Iron and steel. 111
- 255 West Canada Mining Co., Bruce
Mines, Ont.—Ingot copper. 112
- 256 Lake George Antimony Co., Prince
William, N. B.—Babbit metals, regulus,
slags, oxidized ore. 113

FRANCE.

(The French Exhibits in Mining and Metallurgy are installed in the Agricultural Building, and Catalogued in Part IV.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

GERMANY.

(South of Nave, Columns 28 to 38.)

Minerals, Ores, Mining and Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Krupp, Fr., Essen.—Ores and raw products. 100
- 2 Burbach Works, Burbach. 100
 - a Iron. 100
 - b Coal. 101
 - c Stone. 102
- 3 Heinrichshütte, Au-on-the-Sieg.—Spathic iron ore. 100
- 4 Mine Owners of the Siegerland.—Ores, etc. 100

(The above exhibits are installed in Machinery Hall.)

COLLECTIVE EXHIBIT OF PRODUCTIONS OF LEAD MINES AND FURNACES, ACCOMPANIED BY DRAWINGS.

- 5 Royal Prussian Smelting Works of the Upper Harz, Clausthal.—Lead, copper, and zinc ores. 100
- 6 Royal Prussian & Ducal Brunswick Smelting Works of the Lower Harz, Gaslar.—Argentiferous copper and lead ores. 100
- 6a Royal Prussian Smelting Works, Friedrichshütte.—Ores and litharge. 100
- 7 Joint Stock Association for Mining, & Lead & Zinc Manufactures, Stolberg, near Aix-la-Chapelle.—Lead and zinc ores. 100
- 8 Rhenish-Nassau Co., Stolberg, near Aix-la-Chapelle.—Lead ores. 100
- 9 Solenhofen Joint Stock Co., Solenhofen. 100
 - a Tiles for malt-house floors. 102
 - b Lithographic stones. 106
- 10 Zimmermann, Otto, Greussen, Tophus.—Tiles. 102
- 11 Stern Portland Cement Factory, Stettin.—Portland cement. 103
- 12 Hiller, Otto, Berlin.—Mastic roofing and model roof. 103
- 13 Häusler, Carl Sam., Hirschberg, Silesia.—Wood cement and model roof. 103
- 14 Scharlach, Louis, Jr., Hamburg.—Roofing. 103
- 15 Vowohl Asphalt Works, Eschershausen.—Asphalt mastic blocks. 103
- 16 Schindel, John Adam, Solenhofen.—Lithographic stones. 106
- 17 Apollinar's Co., Ahnweiler.—Mineral waters. 107
- 17a Biresborn Mineral Spring Co., Biresborn.—Mineral waters. 107
- 18 Jungfer, A., Berlin.—Amber. 107
- 19 Stantien & Becker, Berlin.—Raw amber. 107

- 20 Managers of Friedrichshall Springs, C. Oppel & Co., Friedrichshall, near Hildburghausen.—Friedrichshall natural bitter water. 107
(For mill and grindstones, see Machinery Hall.)

Metallurgical Products.

- 21 Borsig, A., Berlin.—Iron, cast steel, boiler plates, plates for fire boxes, etc. 111
- 22 Burbach Works, Burbach.—Rolled double T iron. 111
- 23 Krupp, Fr., Essen.—Wheels, pistons, flanges, rollers, springs, etc. 111

COLLECTIVE EXHIBIT, SIEGERLAND.—SPIEGELEISEN AND ORES.

- 24 Heinrichshütte, Au-on-Sieg.—Spiegel iron. 111
- 25 Cologne Müsen Mining Co., Creuzthal.—Spiegel iron. 111
- 26 Joint Stock Co., Charlottenhütte, Niederscheiden.—Spiegel iron. 111
- 27 Wissen Mining & Smelting Co., Wissen.—Spiegel iron. 111
- 28 Lohmann & Söding, Witten.—Steel for tools and arms. 111
- 29 Westphalian Union Joint Stock Co. for Mining & for Iron & Wirework, Hamm.—Wire. 111

(The above exhibits of Metallurgical Products are installed in Machinery Hall.)

- 30 Royal Prussian Smelting Works of the Upper Harz, Clausthal.—Lead, copper, silver, zinc fumes, slags, drawings, etc. 111
- 31 Royal Prussian & Ducal Brunswick Smelting Works of the Lower Harz, Gaslar.—Gold, silver, lead, and copper composition. 111
- 32 Royal Prussian Smelting Works, Friedrichshütte.—Lead bars, slag, and drawings. 111
- 33 Hirsch, Aron, & Son, Brass Works at Neustadt-Eberswalde.—Seamless brass tubes, etc. 112
- 34 Joint Stock Association for Mining, & Lead & Zinc Manufactures, Stolberg, near Aix-la-Chapelle.—Lead and zinc plates, etc. 111
- 35 Ruffer & Co., Breslau.—Sheet zinc. 113
- 35a Rhenish-Nassau Co., Stolberg, near Aix-la-Chapelle.—Lead. 113

Mining Engineering.

- 36 Nörr, Eugene, Berlin.—Drawings and description of a self-acting safety lamp. 120
- 37 Göldecke, Carl, Gelsenkirchen.—Plans of the Gelsenkirchen furnaces. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

AUSTRIA.

(South of Nave, Columns 23 to 28.)

Minerals, Ores, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Imperial & Royal Metallurgy Direction, Idria.—Cinnabar. 100
- 2 Jugoviz, A., Klagenfurt.—Ore and mining products of Karnten. 100
- 3 Chief Mountain & Mining Administration, Pozoritta, Bukowina.—Pyrolusite for aniline pigments for soda factories, German silver ware, and manganese products. 100
- 4 Metallurgy & Mining Administration, Joachimsthal.—Meteoric specimens. 100
- 5 Goldschmidt, Louis A., Dubnik, Hungary.—Unpolished opals. 100
- 6 Nedwied & Son, Schlan, Bohemia.—Red chalk, red-lead pencils. 107

- 7 Saxlehner, Andreas, Budapest.—Hunyadi János mineral water. 107

- 8 Mineral Water Direction, Pullna, near Brüx, Bohemia.—Mineral water. 107

- 9 Loser Bros., Budapest.—Genuine mineral water from the Ofen-Rakoczy spring. 107

Metallurgical Products.

- 10 Industry Association in Krain, Laibach.—Iron and steel mountain and mining works. Ferro-manganese and spiegel iron. 112

- 11 Imperial & Royal Metallurgy Direction, Idria.—Quicksilver. 113

SWITZERLAND.

(North of Nave, Columns 52 to 55.)

Minerals, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Neuchatel Asphalte Co. (limited), Travers, Ct. Neuchâtel.—Natural and mastic asphalt. 102

(The minerals illustrating the geological formations traversed by the St. Gothard tunnel are classified in this catalogue, together with the other exhibits of the St. Gothard Railroad Co., under Dept. III., Class 332.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

not are classified in this catalogue, together with the other exhibits of the St. Gothard Railroad Co., under Dept. III., Class 332.)

Metallurgical Products.

- 2 Bürgin Bros., Schaffhausen.—Phosphate of bronze, different compositions, with strength and fracture tests. 114

BELGIUM.

(North of Nave, Columns 54 to 59.)

Minerals, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Bleyberg es Montzen Joint Stock Co., Montzen, Province of Liège.—Zinc and lead ores. 100
- 2 Vincent Son, Basècles (Hainaut).—Samples of Basècles black marble pavements. 102
- 2a Sacquelen, F., Basècles near Tourzai (Hainaut).—Specimens of Basècles blue and gray stone. 102
- 3 Ville de Spa (Communal Administration).—Trophy furniture, showing views of the city and environs, plans of mineral water-works, samples of these waters, articles of export, etc. The painting of this furniture was executed by Messrs. Boland, Chas., Bronfort, H., Crahey, senior, G. I., Debrus, Alexandre, Debrus, Alexis, Krins, E., Marcette, Henri, and Reigler, L. 107

Metallurgical Products.

- 4 Bonehill Bros., L'Esperance High Furnace Forge Foundry, Marchienne-au-Pont, near Charleroi.—Architectural iron. 111
- 5 Constant, Emile, Monceau-sur-Sambre, near Charleroi.—Patterns of building iron spring and web iron. 111
- 6 Mabilie, Valère, Mariemont (Hainaut).—Manufactured iron, Kind Chaudron shaft-sinking apparatus. 111
- 7 Paris, Isaac Joseph, Marchiennes, near Charleroi.—Iron riveted beams for ship-building. 111
- 8 Charleroi Iron Manufacturing Joint Stock Co., Marchienne-au-Pont, near Charleroi.—Iron for building, etc. 111
- 9 Providence Forge Joint Stock Co., Marchienne-au-Pont, near Charleroi.—Iron for building, iron wheels without welding. 111
- 10 Forge and Rolling Mill Joint Stock Co., Régissa, near Huy.—Polished and unpolished sheet iron by wood and coke. 111
- 11 Angleur Steel Manufacturing Co., F. de Rossius, Pastor & Co., Renory, near Liège.—Bessemer cast steel products, rails, tires, axles, forge pieces, and rolled bars. 111
- 12 Jemmapes Forge Foundry & Rolling Mill Co., V. Demerbe & Co., Jemmapes (Hainaut).—Broken bar-banded iron, tramway rails, system of tramway rails on cast iron sleepers. 111
- 13 Bivort, Raymond, Henri, Arbre, Province of Namur.—Kettles and copper wire. 112
- 14 Bleyberg es Montzen Joint Stock Co., Montzen, near Verviers.—Prepared zinc and lead ore, potters' ore (pure galena) for glazing, pig lead for rolling mill, white lead and crystals, silver ore, block zinc for rolling, galvanizing, etc. 113

NETHERLANDS.

(North of Nave, Columns 60 to 65.)

Stone.

Minerals, Ores, Stone, Mining Products.

- 1 Onderwater, H. F., Dordrecht.—Stones for pavement. 102
- 2 Van Verschuur & Van der Voort, Amsterdam.—Unpolished stones. 102

- 3 Borst & Roggenkamp, Delfsyl.—Portland cement stones, lithographic stones, oilstones, whetstones, grindstones, polishing material, and sand quartz; garnets, raw topazes, diamonds, tripoli, and corundum. 106

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

SWEDEN.

(North of Nave, Columns 6 to 11.)

Ores, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- | | |
|---|---|
| 1 Adelsvärd, Baron Th., Atvidaberg.
—Copper ore. 100 | 24 Osterby & Strömbacka Iron Works,
Osterby.—Iron ores. 100 |
| 2 Bofors Stock Co., Gullspang, Bofors.
—Iron ores. 100 | 25 Uddeholm Company, Rada.—Iron
ores. 100 |
| 3 Berg, Axel, Warby, Stockholm.—
Iron ores. 100 | 26 Larason, P. M., Låsa, Rausa.—Iron
ores. 100 |
| 4 Berg, Gottfried, Warby, Stockholm.
—Zinc, galena, and nickel ores, pyrites. 100 | 27 Sanóvikens Stock Co., Gefle.—Iron
ores. 100 |
| 5 Fagersta Iron & Steel Works,
Westanfors. 100 | 28 Schough, Robert, Lulea.—Iron and
copper ores. 100 |
| a Iron ores. 100 | 29 Geological Survey of Sweden, Stock-
holm.—Geological collections. 100 |
| b Limestone. 103 | 30 Höganäs Coal Mining Co., Höganäs.
a Mineral coal. 101 |
| 6a Swedish Iron Masters' Association,
Stockholm. 100 | b Fire clay, fire brick. 104 |
| a Collection of minerals. 100 | 31 Samuelson, S. H., Föskesfors, Rada.
—Peat. 101 |
| b Maps and drawings. 335 | 32 Westerlund, A. F., Nybro, Kalmar.
—Peat. 101 |
| 6 Avesta Garpenbergs Stock Co.,
Avesta.—Iron ores. 100 | 33 Berg, Gottfried, Warby, Stockholm.
—Porphyry, serpentine, and marble. 102 |
| 7 Björneborgs Iron & Steel Works,
Björneberg.—Iron ores. 100 | 34 Klintberg, J. W., Väsby.—Marble
table slabs, jewelry, etc. 102 |
| 8 Degerfors Stock Co., Degerfors.—
Iron ores. 100 | 35 Kullgrens', C. A., Widow, Uddevalla.
—Articles of polished granite. 102 |
| 9 Ekman, Carl, Finspong.—Iron
ores. 100 | 36 New Marble Works, Norrköping.—
Manufactured marble. 102 |
| 10 Hermansson, C. F., Count von,
Ferna.—Iron ores. 100 | 37 Scanian Cement Co., Malmö.—Port-
land cement, raw materials and products. 103 |
| 11 Hofors & Hammarby Iron Works,
Gefle.—Iron ores. 100 | 38 Rörstrand Stock Co., Stockholm.—
Feldspar. 104 |
| 12 Långbanshyttan, Lang-
banshyttan. 100 | 39 Gottland Grindstone Co., Burgavik.
—Grindstones. 104 |
| 13 Laxa Iron Works Co., Laxa.—Iron
ores. 100 | 39a Karlson, Gust & Martin, Lugnas.—
Grindstone. 106 |
| 14 Lesjöfors Iron & Steel Co., Lang-
banshyttan. 100 | 40 Berg, Gottfried, Warby, Stockholm.
a Graphite. 105 |
| b Hausmannite and limestone. 103 | b Grindstones. 106 |
| 15 Lindberg, Lars, Kohlsva.—Iron
ores. 100 | c Vivianite. 107 |
| 16 Lövsköld, Salomon, Nissafors,
Jönköping.—Iron ores. 100 | 41 Berg, Chr. Lud., Eriksberg, Stock-
holm.—Mineral waters. 107 |
| 17 Ramnäs Iron Works Co., Ramnäs.—
Iron ores. 100 | 42 Mineral Water Stock Co., Stock-
holm.—Mineral waters. 107 |
| 18 Rettig, C. A., Kilafors, Gefle.—Iron
ores. 100 | |
| 19 Schisshytte-Molnebo Iron Works,
Morgongåva.—Iron ores, krebeltite, lin-
cores, and galena. 100 | |
| 20 Stockenström, Axel von, Aker,
Mariefred.—Iron ores. 100 | |
| 21 Stora Kopparbergs Bergslag, Stock-
holm.—Iron ores. 100 | |
| 22 Sundström, J. O., Charlottenberg.—
Iron ores. 100 | |
| 23 New Gellivara Company (limited),
Lulea.—Iron ores. 100 | |

Metallurgical Products.

- | |
|---|
| 43 Bofors Stock Co., Gullspang, Bofors.
—Pig iron, blooms, bar iron, wire rods, and
iron plate. 111 |
| 43a Ramnäs Stock Co., Ramnäs.—Pig
and bar iron; slag. 111 |
| 44 Fagersta Stock Co., Westanfors.—
Pig iron, Bessemer steel ingots, bars,
plates, etc.; steel samples, showing the
strength of the steel. 111 |

Metallurgical Products.

45 Schissbyttan-Molnebo Manufacturing Co., Morgongäva.—Spiegeleisen. 111

46 Göteborgs Mechanical Works Stock Co., Göteborg.—Crown of a flue. 112

47 Laxa Iron Works, Laxa.—Pig iron, blooms, and bar iron. 112

COLLECTIVE EXHIBIT OF IRON MANUFACTURERS, STOCKHOLM.

48 Ankarsrum Works, Ankarsrum.—Pig iron, blooms, iron bars, wire rods, and railway crossings. 111

49 Avesta Garpenberg Stock Co., Avesta.—Pig iron, blooms, and bar iron. 112

50 Björnsborgs Iron & Steel Works, Björnsborg.—Pig iron, Bessemer steel ingots, and manufactured Bessemer steel. 112

51 Degerfors Stock Co., Degerfors, Wernikend.—Pig iron, blooms, wire rods, and plate. 112

52 Ekman, Carl, Finspong.—Pig iron for guns, malleable blooms, and bar iron. 112

53 Gysinge Iron Works, Gysinge.—Iron in the pig and bars, with specimens of slag. 112

54 Hermansson, C. F., Count von, Ferna, Bornhammar.—Pig iron, spiegeleisen, and bar iron. 112

55 Hofors & Hammarby, Hammarby, Storvik, Gefle.—Pig iron, blooms, and bars, with specimens of slag. 112

56 Larsbo, Norrns, Stock Co., Kafalla.—Pig, bar, and angle iron; blooms. 112

57 Lesjöfors Iron & Steel Co., Färlövstad.—Pig iron, ingots of Bessemer and Martin steel, bars, wires, and wire rope of the same material. 112

58 Lindberg Lars, Kohlsva.—Pig iron, bar iron, and wire rods. 111

59 Löfvenskiöld, Salomon, Nissafors, Jönköping.—Iron in the pig and bars. 111

60 Rettig, C. A., Kilafors, Söderhamn.—Pig and bar iron. 111

61 Stokkestjärn, Axel von, Mariefred.—Pig iron for malleable iron. 112

62 Bergslags Iron Works, Stockholm.—Pig iron, Bessemer ingots, blooms, bar iron, and samples of iron showing the quality. 112

63 Sundstöm, J. O., Charlottenberg.—Pig and bar iron; spikes. 111

64 New Gellivara Company (limited), Lulea.—Pig and bar iron; nails. 112

65 Osterby & Strömbacka, Dannemora.—Pig iron, Bessemer steel ingots and bars, Mäster steel, crucible cast steel, and bar iron. 112

66 Surahammars Iron Co., Surahammar.—Iron plate, puddled iron, and steel bars, railway wagon wheels and axles. 112

67 Uddeholms Stock Co. (limited), Rada.—Pig iron, ingots of Bessemer and Martin steel, and iron in bars, springs, etc. 112

68 Larsson, P. M., Låsa, Rönne.—Samples of pig iron. 112

69 Motala Mechanical Co., Motala.—Iron and steel, in bars, plates, and sheets, with products of working. 112

70 Sandvikens Iron Works (limited), Sandviken.—Pig iron, Bessemer steel ingots, forgings for engines, steamers, etc. 112

71 Adelswärd, Baron, Th., Atvidaberg.—Copper in ingots, with specimens illustrating its various stages of production. 112

72 Skultuna Stock Co., Westeras.—
a Copper, with products of working. 112
b Brass in different stages of production. 114

(For rails, railway and wagon wheels, tires, axles, etc., see Class 573, Machinery Hall.)

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

NORWAY.

(North of Nave, Columns 4 to 7.)

Ores, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Geological Survey of Southern Norway, Director Th. Kierulf, Christiania.
 - a Stones, eruptive rocks, leading strata, constituents of coarse granite dykes. 100
 - b Manuscript maps, natural sections, generalized representations, printed maps. 335
- 2 Fasmer, I. H., & Son, Bergen.—Feldspar. 100
- 3 Hinderager Mining Co., Bergen.—Copper ore, pyrites. 100
- 4 Høyem, Andr., Bergen.—Titanium iron ore. 100
- 5 Kongsberg Silver Mines, Kongsberg.—Ores, crystals. 100
- 5a Dahll, J., Kragerø.—Apatite ore. 100
- 6 Bamble Nickel Mines, Johan Dahll, Kragerø.—Samples of nickel ores, with specimens illustrative of the melting process. 100
- 7 Glorud Nickel Co., F. H. Frolich & Son, Christiania.—Nickel ores. 100
- 7a Geological Survey of Southern Norway, Assistant Geologists W. Brügger and H. Reusch, Christiania.
 - a Newly-discovered crystals. 100
 - b Contents of giant-kettles, spiral marked interior grinding-stones. 106

- 7b Ringerige's Nickel Works.—Nickel ores, with rocks and specimens of the smelting process. 100
- 7c Rom Nickel Works.—Nickel ores, with rocks and specimens of the smelting process. 100
- 8 Luttnesee, Georg, Christiania.—Quarry stone for street pavement and curbstones. 100
- 9 Moestue & Co., Thv., Christiania.—Slates for tables, roofs, and floors, from Slidre quarries. 100
- 10 Pettersen, Karl, Tromsø.—Granite, labbro and other massives, raw and polished. 100
- 11 Frolich & Son, F. H., Christiania.—Collection of Norwegian apatite ores. 103
- 12 Birch, F., Selboe.—Millstones. 106
- 14 Christiania Millstones Manufacturing Co., Christiania.—Millstones. 106
- 15 Lønseth, Fred., Christiania.—Millstones from Selbo, flint millstones. 106

Metallurgical Products.

- 16 Kongsberg Silver Mines, Kongsberg.—Silver in bars and granulated silver. 110
- 17 Cathrineholms Iron Works & Foundry, Fredrikshald.
 - a Stoves and other wrought iron. 200
 - b Anchors, chains. 264

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

ITALY.

(North of Nave, Columns 1 to 5.)

Minerals, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Tagliavia, Francesco, & Co., Messina.—Collection of minerals. 100
- 2 Fontana Brothers, Luserna, Turin.—Flagstones. 102
- 3 Tassi, Peter, Leghorn.—Yellow marble and alabaster. 102
- 4 Chamber of Commerce & Arts, Sienna.—Marble and alabaster stone. 102
- 5 Stock Company for Manufacturing Bricks, Poggio, Emilia.—Cement, limestone. 103
- 6 Crispo, Moncada Carlo, Catania.—Limestone. 103
- 7 Maccagnani, Ulisse, Bologna.—Aromatic earth of Cattù. 104
- 8 Bolari & Yellow Earth Co., Sienna.—Bolari and yellow earth, earth for coloring. 104
- 9 Furse Brs., & Co., Rome.—Bolari earth of Sienna. 104
- 10 Molino, Luigi, Genoa.—Lithographic stone. 106
- 11 Scammano, Cav. Michele, Catania.—Cedrats. 107

- 12 Birindelli, Carlo, Florence.—Colalli water. 107
- 13 Spedalieri, Ba Felice, Catania.—Sulphur. 107
- 14 Aristide, Count, Castrocaro.—Mineral waters. 107
- 15 Romano, Gaetano, Palermo.—Sulphur. 107
- 16 Scavo Vita Brothers, Catania.—Sulphur. 107
- 17 Dily, Edoardo, Catania.—Sulphur. 107
- 18 Ardizzone, Francesco, Catania.—Sulphur. 107
- 19 Pennini, Baron of Floristallo, Catania.—Sulphur. 107
- 20 Cesena Sulphur Co. (limited), Cesena.—Raw and refined sulphur. 107
- 21 Bartolini dott Cesare, Sienna.—Fossil flour. 107

Metallurgical Products.

- 22 Fornara, Gio., & Co., Turin.—Wire. 111
- 23 Ponsard & Gigli, Florence.—Iron, manganese. 111

BRAZIL.

(North of Nave, Columns 58 to 61.)

Minerals, Stone.

Minerals, Ores, Stone, Mining Products.

- 1 Province of Paraná.
 - a Iron ores. 100
 - b Clay, argil, and schist. 104
 - c Alkaline waters. 107
- 2 Province of San Paulo.—Iron ores. 100
- 3 Ypanema Iron Works.—Iron ores. 100
- 4 Cunha Bettancourt, M. J. da.—Minerals. 100
- 5 Gercaix, H.—Rocks and minerals. 100

6 Commission General for the National Exhibition.

- a Ores. 100
- b Coal. 101
- c Marbles. 102
- d Clay, argil, and schist. 103
- e Minerals, showing gold and diamond formations. 106
- 7 National Museum.
 - a Minerals. 100
 - b Coal. 101
 - c Marbles. 102
 - d Gems. 106

For classes of exhibits, indicated by number at end of entries, see Classification, pp 57-61.

Oils, Blacking, Boots and Shoes.

8	Goes, J. T. Pereira de.—Minerals.	100
9	Lemos, J. A. de.—Minerals.	100
10	Correia, J. Severo.—Calcareous rocks, galena, and pyrites.	100
11	Athayde, M. E. de S.—Mica.	100
12	Moraes, Rozeira, M. G. de.—Martial pyrites.	100
13	Mendes, J. O. a Sulphur. b Calcareous stalactites.	100 100
14	Costa Netto, J. da.—Fossils.	100
15	Province of San Pedro do Sul.—Coal.	101
16	Villa Franca, Baron of.—Peat.	101
17	Andrade, A. R. L.—Bituminous coal.	101
18	Barbacena, Viscount of.—Coal.	102
19	Province of Sancta Catherina. a Coal. b Marble.	102 102
20	Lopez, F. J. A., & Co.—Bituminous schist.	102
21	Carvalho, A. P. S.—Bituminous schist.	102
22	Muricy, J. C. da Silva. a Anthracite and bituminous coal. b Quartz, agates, and grindstones.	102 106
23	Steraux, E.—Marbles.	102
24	Leao, A. D. a Calcareous siates and stalactites. b Rock crystal and agates.	102 106
25	Coritiba Museum. a Slates. b Violaceous quartz.	102 106
26	Osternack, Charles.—Virgin lime.	103
27	Juparass, Baron of, & Nogueira da Gama.—Calcareous specimens.	103
28	Freitas, T. Teixeira de.—Lime.	103
29	Cardoso, A. Nunes.—Lime from oyster-shells.	103
30	Portugal, F. P. de Asvedo.—Calcareous rocks.	103
31	Commission of S. Joao d' El Rei.—Plaster of Paris in powder.	103
32	Nhorinho, J. S. da Silva.—Lime.	103
33	Bento, Dr.—Lime.	103
34	Lendenberg, L. B.—Lime.	103
35	Rezende, C. Xavier.—Stalactites.	103
36	Colony of Assungui.—Saponeaceous clay.	104
37	Gonzaga, E. J.—Clays.	104
38	Gonsalves, J.—Calcedin kaolin.	104
39	Correa, G. Lourenço.—Clay.	104
40	Wirmoad, E. E.—Yellow argil.	104
41	Mota, C. S. da.—Tagua (rose-colored argil).	104
42	Gomes, T. G. C.—Argil.	104
43	Figueredo, D. J.—Argil and plastics.	104
44	Magalhaes, F. T. S.—Argil and colored clay.	104
45	Andrade, J. F. de.—Colored clay.	104
46	District of Formiga.—Argil.	104

47	Travanca, A.—Argil.	104
48	Schimmelpfing, A.—Kaolin.	104
49	Ribas, M. de Sa.—Alum.	106
50	Ferreira, Domingos F.—Rough and cut diamonds.	106
51	Silva, L. Machado da.—Quartz prisms.	106
52	Heyd, Theodoro.—Grindstones.	106
53	Siqueira, P. Lustosa de.—Agates.	106
54	Colony of Mucury.—Precious stones.	106
55	Cortez, P. de Siqueira.—Amethysts.	106
56	Azevedo, D. J. Santos.—Diamonds.	106
57	Maciel, D. Ferreira.—Sulphurous water.	106

Metallurgical Products.

58	Commission General for the National Exhibition.	
a	Gold.	110
b	Iron.	111
c	Mercury.	113
59	Province of Paraná.—Specimens of gold veins.	110
60	Tourinho, F. A. M.—Magnetic gold.	110
61	Camara, J. Ewbank da.—Auriferous stones.	110
62	Leone, F. M., & Lemos, P. L.—Auriferous minerals.	110
63	Camara, F. T. Vieyra da.—Gold-dust.	110
64	Pórtogol, F. P. de A.—Gold-dust.	110
65	Province of Pernambuco.—Native iron.	110
66	National Museum.	
a	Iron.	111
b	Copper.	112
67	Province of Santa Catherina.	
a	Iron.	111
b	Nickel.	114
68	Cruz, B. A. da.—Magnetic iron.	111
69	Lellian, Ernesto.—Magnetic iron.	111
70	Ypanema Iron Works.—Bar iron.	111
71	Silva, M. A. Machado da.—Oligistic iron.	111
72	Olivetra, A. C. de.—Oligistic iron.	111
73	Barboda, Nemes.—Oligistic iron.	111
74	Aranjo, J. A. Vieyra de.—Oligistic iron.	111
75	Ledo, Agostinho E. de.—Oligistic iron.	111
76	Suppicy, J. Francisco.—Pyrites and sulphuret of iron.	111
77	Gasse, F.—Lead fells from Rio de Janeiro.	113

Mine Engineering, Models, Maps, and Sections.

78 Geological Commission.—Geological photographs.	120
79 Gorcix, H.—Geological map of the Chapadao.	120

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

ARGENTINE REPUBLIC.

(Nave to South Avenue, Columns 2 to 5.)

Minerals, Ores, Stone.

Minerals, Ores, Stone, Mining Products.

- 1 Raymond, Hipolito, Province of Mendoza.—Collection of minerals. 100
- 2 Provincial Commission, Province of Mendoza.—Collection of minerals. 100
- 3 Lemos, Abraham, Province of Mendoza.—Minerals for paints. 100
- 4 Treloar, William A., Province of La Rioja.—Collection of minerals. 100
- 5 Almonacid & Parchappe, Province of La Rioja.—Collection of minerals. 100
- 6 Illanes, Manuel I., Province of La Rioja.—Minerals of Cerro de Vinchina. 100
- 7 Basculan, Francisco, Province of La Rioja.—Minerals. 100
- 8 Provincial Commission, Province of La Rioja.
 - a Minerals. 100
 - b Lime and common gypsum. 103
 - c White chalk and specimens of colored clay used in the manufacture of pottery and paints; colored chalk. 104
- 9 Gelos, Martin, Province of La Rioja.
 - a Minerals of Oita. 100
 - b Calcined lime; gypsum. 103
 - c Chalk. 104
 - d Whetstones of "La Torre," in their native state; flint. 106
- 10 Vega, Daniel de la, Province of La Rioja.—A petrification. 100
- 11 Schröder, Theodora, Province of La Rioja.—Copper ore. 100
- 12 Gifford, Senor, Province of La Rioja.—Silver ore. 100
- 12a Bevan, Eduardo A., Province of La Rioja.—Ores. 100
- 13 Aguilar, Francisco D., Province of San Juan.
 - a Minerals. 100
 - b Mineral waters. 107
- 14 Government of the Province of San Juan.—Collection of minerals. 100
- 15 Provincial Commission, Province of San Luis.
 - a Collection of minerals. 100
 - b Stone pestle used by the Indians to grind corn and other grains; stone pan made by Indians, etc. 108
- 16 Metzler, A., Province of Catamarca.—Minerals. 100
- 17 Romay, Gabriel, Province of Catamarca.—Iron and antimony ores. 100
- 17a Zorilla, Benjamin, Province of Salta.—Silver ore. 100
- 18 Provincial Sub-commission of Tinogasta, Province of Catamarca.—Ores of iron, lead, copper, silver, etc. 100
- 19 Gálinder, Clásico, Province of Catamarca.—Silver and copper ore. 100
- 20 Villafañe, Tristan, Province of Catamarca.—Silver-bearing galena. 100
- 20a Bedoya, Segundo, Province of Salta.—Silver ore. 100
- 21 Resoagli, Luis, Province of Corrientes.—Quartz, flint, agate, etc. 100
- 22 Mansilla, Manuel, Province of Corrientes.—Quartz, agate, copper ore; and mica. 100
- 23 Galarraga, E. G. de, Province of Corrientes.—Crystal rock. 100
- 23a Tula, Nabor, Province of Catamarca.—Copper ore from the Cerro Negro. 100
- 24 Sicard, Juana G. de, Province of Corrientes.—Horn-shaped stone. 100
- 25 Porta, Felix, Province of Corrientes.—Agglomeration of small stones. 100
- 26 Acosta de Quirolo, Josefa, Province of Corrientes.—Crystal rock. 100
- 27 Cufa, Americo, Province of Corrientes.—Agate. 100
- 27a Molina & Carranza, Province of Catamarca.—Ore from the Rosario mine. 100
- 28 Cabral y Melo, José María, Province of Corrientes.—Crystal rock and flint. 100
- 28a Salcedo, Uladislao M., Province of Catamarca.—Copper and silver ore. 100
- 29 Pujol, Nicanor, Province of Corrientes.—Iron ore. 100
- 30 Córdoba University, Province of Córdoba.—Collection of minerals. 100
- 30a Muro, Froilan, Province of Catamarca.—Iron and copper ore, coppers, and alum. 100
- 31 Fragneiro, José M., Province of Córdoba.—Lead containing silver. 100
- 32 Provincial Commission, Province of Córdoba.
 - a Lead containing silver, gypsum, various minerals. 100
 - b Marble. 100
 - c Whetstones. 106
- 33 Vasquez, Lucrecio, Province of Córdoba.—Emeralds; round-shaped stone made by Indians. 100
- 34 MacDowell, N., Province of Córdoba.—Minerals. 100
- 35 Olmos, José V., Province of Córdoba.—Minerals. 100
- 36 Provincial Commission, Province of Salta.
 - a Galena, silver, and lion ores. 100
 - b Wrought stone for table top. 100
 - c Sulphate of lime. 103
 - d Kaolin. 104

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Minerals, Ores, Stone.

- 37 Echevarria, Cecillo, Province of Santa Fé.—Minerals; quartz and agates of Alto Uruguay. 100
- 38 Rap, Eugenio, Province of Tucuman.—Collection of minerals. 100
- 39 Government of the Province of Jujui.—Silver ore from Tilcara. 100
- 40 Sub-commission of the Department of Diamante, Province of Entre Rios.—
a Stones found on the shores of the Plata y Uruguay. 100
b Hydraulic cement stones and cement, lime, artificial stone, petrified wood, etc. 103
- 40a Provincial Commission, Province of Catamarca.
a Quartz, garnets, manganese, etc. 100
b Coal. 101
c Soapstone from Ancasti. 103
d Water-lime, gypsum. 103
e Colored clay, soapstone in powder, kaolin, etc. 104
f Mineral waters. 107
- 40b Elordi, Louis, Province of Buenos Ayres.—Copper ore from Patagones. 100
- 41 Arguello, David, Province of Córdoba.
a Silver ore. 100
b Anthracite coal. 101
- 42 Galvan, Federico, Province of La Rioja.—Coal from Tumbillos. 101
- 43 Roman, Gabriel, Province of Catamarca.—Coal. 101
- 44 Valdes, Emiliano, & Cipriano, Province of Buenos Ayres.
a Colored and other stones from Tandil. 103
b Black and white vegetable clay from Balcarce. 104
c Sand and whetstones. 106
- 45 Olmos, José V., Province of Córdoba.—White marble. 103
- 46 Salas, Manuel M., Province of Corrientes.—Marble and crystallized stones. 103
- 47 Santos, Francisco A., de los, Province of Corrientes.—Hollow unpolished stone. 103
- 48 Hurley, Tomás, Province of Catamarca.—Granites; copper and black bronzes; antique pieces of stone discovered in the abandoned mine of Ortiz. 103
- 49 Provincial Commission, Province of Santiago del Estero.
a Dressed stones from the Sierra de Guaya-can. 103
b Crystallized and common gypsum. 103
c Colored clay and saltpetre. 104
d Mineral and sarsaparilla waters. 107
- 50 Provincial Commission, Province of San Juan.—Building stone. 103
- 51 Avellaneda, Nicolas, Province of Córdoba.—Marble 103
- 52 Segura, Rufino, Province of Catamarca.—Soapstone, flagstone. 103
- 53 Sub-commission of Andalgala, Province of Catamarca.—Soapstone from Ilen. 103
- 54 Riso, Isidoro, Province of Catamarca.
a Soapstone. 103
b Water lime. 103
- 55 Herrera, Nicolas, Province of Catamarca.—Slate. 103
- 56 Cornejo, Melchora, T., Province of Salta.
a Carbonate of lime. 103
b Mineral waters. 107
- 57 Saravia, Pablo, Province of Salta.—Sulphate of lime. 103
- 58 Fornasari, R., & Facino, H., Province of Entre Rios.—Hydraulic cement, artificial stones. 103
- 59 Commission of Paraná, Province of Entre Rios.
a Paving-stones, limestones, lime, sulphate of lime, petrified oyster-shells, etc. 103
b Clay, fine sand, calcareous clay, containing gold and silver. 104
c Tripoli. 106
- 60 Garlve, N., Province of Entre Rios.—Artificial stone. 103
- 61 Peretti, Santiago, Province of Salta.—Dressed stone and carbonate of lime. 103
- 63 Solá, Ramon, Province of Entre Rios.—Gypsum. 103
- 64 Justice of the Peace of Ensenada, Province of Buenos Ayres.—Lime made from shells. 103
- 65 Pedruncini, Juan, Province of Buenos Ayres.—Shell-lime. 103
- 66 Valdes, Nicasio, Province of Buenos Ayres.
a Lime from Balcarce. 103
b Red clay. 104
- 67 Iñiguez, Manuel A., Province of Buenos Ayres.—Limestone from Tandil. 103
- 68 Commission of Water Works, Province of Buenos Ayres.
a Lime-shells, calcareous stones, raw and burnt cement, cement in shape of bricks. 103
b Clay. 104
- 69 Welsh, Miguel, Province of Buenos Ayres.—Limestone, quicklime, slaked lime. 103
- 70 Caetani, Vicente, Province of Buenos Ayres.—Artificial marble. 103
- 71 Sandrot, José, Province of Buenos Ayres.—Artificial stones. 103
- 72 Justice of the Peace of Patagones, Province of Buenos Ayres.—Gypsum, etc. 103
- 73 Ibañez, P., Province of Catamarca.—Sulphagmitical lime. 103
- 74 Provincial Commission, Province of Tucuman.
a Black, yellow, and white limestone, common gypsum. 103
b White clay. 104
- 75 Paroni, Andrés, Province of Santa Fé.—Hydraulic cement. 103
- 76 Provincial Commission, Province of Corrientes.—Calcareous stones from Itati. 103
- 77 Aguilar, Francisco D., Province of San Juan.—Hydraulic lime. 103
- 78 Gache, Manuel, Province of Buenos Ayres.—Gypsum from Rio Salado. 103
- 78a Carenzo, Nicholas, Province of Salta.—Kaolin, white clay, and chalk. 104
- 79 Santa Cruz, Simon de, Province of Entre Rios.—Sand from Ibicui. 104
- 79a Tamayo, Sidney, Province of Salta.—White clays. 104
- 80 Arias, Hilarion, Province of Salta.—Sulphate of lime. 104
- 81 Lopez, Feliciano, Province of Corrientes.—Clay for the manufacture of crockery, tiles, and bricks, yellow stone for coloring and paint. 104

Minerals, Stone, Metallurgical Products.

- 82 Sub-commission of Bella Vista, Province of Corrientes.—Stone containing red and yellow coloring substances; clays. 104
- 84 Calderon, Pedro, Province of Entre Rios.—Vegetable clay. 104
- 85 Fontes, V. M., & Negra, S., Province of Entre Rios.—Clay for whitewashing. 104
- 86 Basan, Abel, Province of La Rioja.—Refractory bricks. 104
- 87 Barros, José, Province of La Rioja.—Refractory bricks. 104
- 89 Justice of the Peace of Zarate, Province of Buenos Ayres.—Black and ferruginous clays. 104
- 90 Lobo, Tristan, Province of Catamarca.—Chalk clay, tiles, and bricks. 104
- 91 Lafone Quevedo, Samuel A., Province of Catamarca.
 a White clay for bricks; refractory bricks. 104
 b Hard fossil-ground quartz. 106
- 93 Caballero, Eugenio, Province of Salta.—Graphite. 105
- 93 Medina, Luis R., Province of Catamarca.—Whetstones from Concepcion. 106
- 94 Peres, Luisa, Province of La Rioja.—Mineral water. 107
- 96 Patron Bros., Province of Salta.—Mineral waters. 107
- 97 Schmidt, Antonio, Province of San Luis.—Mineral waters. 107
- 98 Escobar, Juan de D., Province of San Luis.—White-stone water. 107
- 99 Sub-commission of the Colony of San Carlos, Province of Santa Fé.—Vegetable clay. 107
- 100 Otamendi, Carlos, Province of Buenos Ayres.—Shells from the coast of Balcarce. 107

Metallurgical Products.

- 101 Gainza, Martin de, Province of Buenos Ayres.—Gold from Patagonia. 110
- 102 Nell, Federico, Province of San Luis.—Gold and washed gold. 110
- 103 Bertram & Co., Province of San Luis.—Gold from the Descubridora mine. 110
- 104 Provincial Commission, Province of San Luis.—Gold from La Carolina mine. 110
- 105 Lafone Quevedo, Samuel A., Province of Catamarca.—Copper ingots. 111

CHILI.

(North of Nave, Columns 3 to 5.)

Minerals, Ores, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Government of Chili.—Silver and copper ores, and other minerals. 100
- 2 Sere, Edouard, Santiago.—Minerals. 100
- 3 Escobar, E., Copiapo.—Gold, silver, and copper ores, and other valuable minerals. 100
- 4 Urmenta & Errazuriz, Santiago.—Copper ores from Tamagua. 100
- 5 Escudero, R., Santiago.—Stone. 100
- For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

- 6 Sanchez, Francisco, Talca.—Carved stone from Talca. 100

- 7 Cadiz, Jose, Gabriel, Santiago.—
 a Artificial marble balustrade, mantel, pilasters, and columns. 103
 b Natural and powdered gypsum. 107

Metallurgical Products.

- 8 Government of Chili.—Copper in ingots. 110

Mining Engineering.

- 9 Errazuriz, Maximiano, Santiago.—Strata of coal mine in Lebu. 101

MEXICO.

(North of Nave, Columns 64 to 67.)

Minerals, Ores, Stone, Metallurgical Products.

Minerals, Ores, Stone, Mining Products.

- 1 Ochva, Gaspen, Sanchez, City of Mexico.—Sulphur from the Volcano Popocatepetl. 100
- 2 Mexican Mining Society, City of Mexico.—Minerals and rocks. 100
- 3 School of Engineers, City of Mexico.—Minerals. 100
- 4 National Museum, City of Mexico.—Minerals and rocks. 100
- 5 Barcena, Mariano, City of Mexico.—Livingstonite. 100
- 6 Folsa, M. José, Pregones, State of Guerrero.—Quicksilver ores. 100
- 7 Natural History Society, City of Mexico.—Minerals. 100
- 8 Government of the State of Durango, Durango City.—Iron ores. 100
- 8a Muller, N., Chihuahua City.—Meteoric iron. 100
- 9 Soto, Mayor C., State of Michoacan.—Minerals from the mineral district of Angangueo. 100
- 10 Rull, Miguel, City of Mexico.—Minerals. 100
- 10a Corcuera, Manuel, State of Jalisco.—Iron ores. 100
- 11 Real Del Monte Company.—Minerals. 100
- 12 State Government of Oaxaca.—Minerals. 100
- 13 San Rafael Company.—Minerals from Zacatecas City. 100

- 14 Quebradella Company, Zacatecas City.—Minerals. 100
- 15 Mala Noche Company, Zacatecas City.—Minerals. 100
- 16 Ponce, Juan, Zacatecas City.—Minerals. 100
- 17 Romires, S. & C. J., City of Mexico.—Rocks. 100
- 18 Barcena, Manimo, City of Mexico.—Fossils, rocks, and geological maps. 100
- 19 Farrugia, Federico, State of Hidalgo.—Minerals and metallurgical products. 100
- 20 Zenteno, Estevan, Fempoal, Vera Cruz.—Coal. 101
- 21 Gutierrez, Julian, & Co., City of Mexico.—Marble from the State of Puebla. 102
- 22 Bocanegra, S., State of San Luis Potosi.—Marbles. 102
- 23 State Government of Hidalgo.—Argils. 104

Metallurgical Products.

- 24 Bermegillo, Pio, State of Michoacan.—Cake of silver from Argangueo. 110
- 25 Encarnacion Company.—Wrought and cast iron. 111
- 26 Guadalupe Company.—Wrought and cast iron. 111
- 27 Esperon, José, Oaxaca City.—Wrought and cast iron. 111

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

SPAIN.

(South of Nave, Columns 16 to 18.)

Minerals, Ores, Stone.

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| <p>1 Arrivillaga, Agustin, Fondon, Province of Almería.—Galena. 100</p> <p>2 Fernandez, Diego, Cuevas, Province of Almería.—Argentiferous galena and barytes. 100</p> <p>3 Campos, Francisco, Fondon, Province of Almería.—Laminated galena. 100</p> <p>4 Montoro, Francisco, Vera, Province of Almería.—Laminated galena. 100</p> <p>5 Bachiller, Guillermo, Cuevas, Province of Almería.—Argentiferous galena with iron pyrites. 100</p> <p>6 Ceresuelo, Gonzalo, Berja, Province of Almería.—Laminated galena. 100</p> <p>7 Gonzalez, Gabriel, Laujar, Province of Almería.—Laminated galena. 100</p> <p>8 Terriza, José, Berja, Province of Almería.—Laminated galena. 100</p> <p>9 Rapalo, José, Almería, Province of Almería.—Galena. 100</p> <p>10 Olmo, José del, Berja, Province of Almería.—Galena, stained with minium. 100</p> <p>11 Cavanillas, Juan, Cuevas, Province of Almería.—Argentiferous galena. 100</p> <p>12 Corrello, Rafael, Almosita, Province of Almería.—Galena. 100</p> <p>13 Abad, Jerónimo, Nijar, Province of Almería.—Pyrolusite. 100</p> <p>14 Ayala, Antonio, Lucar, Province of Almería.—Steatite. 100</p> <p>15 Padilla, Francisco, Nijar, Province of Almería.—Calamine and carbonate of lead. 100</p> <p>16 Blanco, Prudencio, Alcolea, Province of Almería.—Gray calamine. 100</p> <p>17 Duran, Estéban, Almería.—Oxide of copper and calamine. 100</p> <p>18 Ramirez, Luis, Lucar, Province of Almería.—Black oxide of cobalt. 100</p> <p>19 Rio, Eustaquio, Huercal-Overa, Province of Almería.—Arseniate of cobalt. 100</p> <p>20 Real, José, Almería.—Carbonate of lead. 100</p> <p>21 Gomez, Crisanto de, Nijar, Province of Almería.—Carbonate of lead. 100</p> <p>22 Trell, Miguel del, Berja, Province of Almería.—Carbonate of calamine. 100</p> <p>23 Daza y Ruiz, Francisco, Purchena, Province of Almería.—Iron ore. 100</p> <p>23a Daza y Ruiz, Seron, Province of Almería.—Iron ore. 100</p> <p>23b Daza y Ruiz, Lucar, Province of Almería.—Cinnabar ore and cobalt. 100</p> <p>24 Vivas Asqueros, Antonio, Pechina, Province of Almería.—Iron ore. 100</p> | <p>25 Linares, Clemente, Albánchez, Province of Almería.—Iron ore. 100</p> <p>26 Villalobos Brothers, Berja, Province of Almería.—Sulphate of lead. 100</p> <p>27 Hernandez, Secundino, Feria, Province of Badajoz.—Iron ores. 100</p> <p>28 Successful Society, Alconchel Chelios, Province of Badajoz.—Chakopirita. 100</p> <p>29 Lafite & Co., Castuera, Province of Badajoz.—Galena and argentiferous lead. 100</p> <p>30 Mateos y Morato, Santiago, Asuaga, Province of Badajoz.—Sulphate of lead. 100</p> <p>31 Grappin, G. de, Llerena, Province of Badajoz.—Galena. 100</p> <p>31a Grappin, G. de, Malpartida, Province of Cáceres.—Phosphate of lime. 100</p> <p>31b Grappin, G. de, Aldeacentenera, Province of Cáceres.—Copper. 100</p> <p>31c Grappin, G. de, various towns of the province of Cáceres.—Collection of ores. 100</p> <p>32 Martinez de Santa Maria, Juan, Burguillos, Province of Badajoz.—Magnetic iron ore. 100</p> <p>33 Lligé & de Planell, Juan, Gabá y del Figaró, Province of Barcelona.—Iron ore with manganese. 100</p> <p>34 O'Daly, Olimpia Vallicareara, Province of Barcelona.—Magnetic iron. 100</p> <p>35 Anglada & Co., Pontons, Province of Barcelona.—Carbonate of zinc. 100</p> <p>36 Provincial Commission, Atapuerca, Province of Burgos.—Stalactites. 100</p> <p>37 Richard & Granducontangne, Rio-cavado, Province of Burgos.—Hematites. 100</p> <p>37a Richard & Granducontangne, Huerto-abajo, Province of Burgos.—Hematites. 100</p> <p>37b Richard & Granducontangne, Monterrubio de la Sierra, Province of Burgos.—Hematites. 100</p> <p>38 Gutierrez, Julian, Olmos de Atapuerca, Province of Burgos.—Yellow and red ochre. 100</p> <p>39 Oria, Eugenio, Pancorbo, Province of Burgos.—Oxide of iron. 100</p> <p>40 Corporation of Pineda.—Micaceous iron. 100</p> <p>41 Muñoz Bello, Francisco, Cáceres.—Phosphate of lime. 100</p> <p>42 Gonzalez, Diego Bibiano, Cáceres.—Calcareous phosphates. 100</p> <p>43 Rocandio, Jorge, & Sbarby, Manuel, Zarza y Ciclavin, Province of Cáceres.—Calcareous phosphate. 100</p> |
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For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 17-45.

Minerals, Ores.

- 44 Sande Olivares, Gerónimo de, Garro-
billas de Alconetar, Province of Cáceres,
—Copper ore. 100
- 45 Miro Cerdá, various towns of the
Province of Castellon.—Ores. 100
- 46 Provincial Board of Agriculture,
Province of Castellon.—Galena and cala-
mine. 100
- 47 Caminero, José, Ciudad-Real.—
Ores. 100
- 48 Piquet, Alfonso Emilio, Horcajo,
Province of Ciudad-Real.—Ores. 100
- 49 Mines of Almaden, Almaden, Ciu-
dad-Real.—Cinnabar ores and rocks. 100
- 50 Ducloux, Francisco Javier, Province
of Barcelona.—Ores. 100
- 51 Gomes Ruiz, widow & sons of
Gabriel, San Julian del Llot, Province of
Gerona.—Lead ore. 100
- 52 Hlserr, Joaquin, Carataunas, Prov-
ince of Granada.—Hematite iron. 100
- 53 Vasquez, Diego, Pitres, Province of
Granada.—Quicksilver ore. 100
- 54 Corps of Mining Engineers, Hien-
daencina, Province of Guadalajara.—
Brittle silver, blue copper, and mala-
chites. 100
- 55 Gracian, Andrés, Huelva.—Sulphur
of argentiferous antimony. 100
- 56 Ibarra, José Maria de, Huelva.—Col-
lection of cuprous-iron pyrites and pro-
ducts. 100
- 57 Vasquez y Lopez, M., Zalamea la
Real, Province of Huelva.—Peroxide of
manganese. 100
- 58 Rieken y Gerdes, George, Mina Bron-
teriza, Huelva.—Sulphur. 100
- 59 Solo, Emilio de, Alosno, Province of
Huelva.—Peroxide of manganese. 100
- 60 Díaz y Gomez de Cadiz, Eduardo,
Valverde del Camino, Province of Huel-
va.—Manganese ore. 100
- 61 Bull & West, Diego, Valverde del
Camino, province of Huelva.—Cuprous
pyrites. 100
- 62 Tharsis Sulphur & Copper Co.
(limited), Alosno, Province of Huelva.—
Ores and slags. 100
- 63 Rio Tinto Co. (limited), Province of
Huelva.—Ores. 100
- 64 La Buena Fé, Society, Linares, Prov-
ince of Jaen.—Laminated galena, etc. 100
- 65 La Familia Society, Linares, Prov-
ince of Jaen.—Laminated galena and ga-
lena in dross. 100
- 66 La Inocencia Mining Society, Guar-
roman, Province of Jaen.—Laminated
galena and galena in dross. 100
- 67 Stolberg & Westfalia, Anonymous
Society, Linares, Province of Jaen.—
Laminated galena and galena in dross. 100
- 68 English, Heirs of Juan Carlos, Li-
nares, Province of Jaen.—Laminated and
ground galena and galena in dross. 100
- 69 Accino y Vasquez de Araujo, En-
rique, Linares, Province of Jaen.—Lami-
nated galena. 100
- 70 Sopwith, Tomás, Linares, Prov-
ince of Jaen.—Laminated galena. 100
- 71 Bonaplata, Eduardo, Bailén, Prov-
ince of Jaen.—Galena. 100
- 72 Figueroa, Ignacio, Linares, Province
of Jaen.—Galena. 100
- 73 Amado Salazar, Enrique, Bailén,
Province of Jaen.—Galena. 100
- 74 Lohnstein, Emilio, Linares, Prov-
ince of Jaen.—Galena. 100
- 75 Arboledas, Martin, Linares, Prov-
ince of Jaen.—Sulphate of lead. 100
- 76 Villanova, José Genaro, Linares,
Province of Jaen.—Earth from a lead
mine, and potter's antimony. 100
- 77 Polo Leoncio, Villafeliz, Province of
Leon.—Iron ore. 100
- 78 Alonso, Casimiro, Leon.—Oxidized
iron ore. 100
- 79 Bertrand, Casimiro, Alins, Lérida.—
Ocellerita, native iron. 100
- 80 Reynante y Cancio, Manuel, Riva-
deo, Lugo.—Ores. 100
- 81 Corps of Mining Engineers, Madrid.
—Ores. 100
- 82 Naranjo y Garza, Felipe, from vari-
ous towns of the Province of Madrid.—
Ores. 100
- 83 Mining Engineers, Málaga.—Mala-
chite copper ore. 100
- 83a Mining Engineers, Marbella, Prov-
ince of Málaga.—Magnetic iron. 100
- 83b Mining Engineers, Estepona, Prov-
ince of Málaga.—Magnetic iron. 100
- 83c Mining Engineers, Mijas, Province
of Málaga.—Hydrated iron, galena, and
magnetic iron. 100
- 83d Mining Engineers, Istan, Province
of Málaga.—Magnetic iron. 100
- 83e Mining Engineers, Carratraca,
Province of Málaga.—Hematites. 100
- 83f Mining Engineers, Antequera,
Province of Málaga.—Oligistic iron. 100
- 83g Mining Engineers, Coin, Province
of Málaga.—Hematites. 100
- 83h Mining Engineers, Benahavis,
Province of Málaga.—Sulpho-arsenic
nickel and sulphurous nickel. 100
- 83i Mining Engineers, Benalmadena,
Province of Málaga.—Hydrated iron. 100
- 83j Mining Engineers, Alora, Province
of Málaga.—Nickel. 100
- 83k Mining Engineers, Almogía, Prov-
ince of Málaga.—Malachites and pyrites
of copper. 100
- 83l Mining Engineers, Alhaurin el
Grande, Province of Málaga.—Galena and
carbonate of lead. 100
- 83m Mining Engineers, Colmenar, Prov-
ince of Málaga.—Galena and pyrites of
copper. 100
- 83n Mining Engineers, Nerja, Province
of Málaga.—Galena. 100
- 83o Mining Engineers, Archidona,
Province of Málaga.—Oligistic iron. 100
- 84 Blandin y Carrese, Manuel, Vera,
Province of Navarra.—Iron ores. 100
- 85 Macía & Co., Demétrio, Penonta,
Province of Orense.—Tin ore. 100

Minerals, Ores, Stone.

- 86 Vila, Francisco, Pentes, Province of Orense.—Tin ore. 100
- 87 Mining District of Oviedo, various towns of the Province of Oviedo.—Ores. 100
- 88 Acebal y Menendez, Benito, Carreño, Province of Oviedo.—Iron ore. 100
- 89 Uria Pinilla, Navia de Luerca, Province of Oviedo.—Iron ores. 100
- 90 National Factory of Trubia, Trubia, Province of Oviedo.—Iron ores. 100
- 91 Diestro y Lastra, Antonio del, Mier, Province of Oviedo.—Ores. 100
- 92 Somoza Piñeiro, Ramon, Merza, Province of Pontevedra.—Magnetic iron. 100
- 93 Mining Society, Salamanca.—Tin ore. 100
- 94 Neeschourrer Bellesfrod & Co., from various towns and provinces.—Ores. 100
- 95 Mining & Foundry Co. of Santander.—Ores. 100
- 96 Buen Deseo Mining Society, Peñalcázar, Province of Soria.—Argentiferous lead ore. 100
- 97 Perez, Bernardo, Peñalcázar, Province of Soria.—Argentiferous lead ore. 100
- 98 Director of the Company of Mines & the Manufactory del Pedroso, Cazalla de la Sierra, Province of Seville.—Iron ores. 100
- 99 Gomez, José María, Vimbodi, Province of Tarragona.—Pyrites and barytes in powder. 100
- 100 Monner, Francisco, Las Borjas, Province of Tarragona.—Oligistic iron. 100
- 101 Britó & Sierra, Camañas, Province of Teruel.—Crystallized manganese ore, pyrolusite. 100
- 102 Maorad, Benito, Camañas, Province of Teruel.—Manganese. 100
- 103 Valdemoro, Juan Francisco, Teruel.—Oxide of iron. 100
- 104 Belles, James, Albarracin, Province of Teruel.—Oxide of iron. 100
- 105 Perez, Francisco, Linares, Province of Teruel.—Calamine. 100
- 106 Diego, Vicente de, Bilbao, Province of Vizcaya.—Iron ores. 100
- 107 Bourson, Miguel, Somorrostro, Province of Vizcaya.—Iron ore. 100
- 108 Bilbao Iron Ore Company (limited), Galdames, Province of Vizcaya.—Iron ore. 100
- 109 Zabalo, Andrés, Illueca, Zaragoza.—Oligistic iron. 100
- 109a Mouner, Francisco, Reus, Province of Tarragona.—Ores. 100
- 110 Rueda, Manuel, Mesones, Province of Zaragoza.—Oligistic iron. 100
- 111 Boiven y Senty, Adolfo, Maestu, Province of Alava.—Natural rock asphaltum, refined bitumen, pure and dry asphaltum. 101
- 112 Asphaltum Company of Maestu, Vitoria.—Asphaltum. 101
- 113 Mining Union, Calaf, Province of Barcelona.—Lignite. 101
- 114 La Perla Bergadana Mining Society, Pont de Raventí, Province of Barcelona.—Mineral coal. 110
- 115 Gispert y Pujals, Manuel, Barcelona.—Mineral coal. 101
- 116 Oria, Eugenio, Brieua de Juarros, Province of Burgos.—Dry pit-coal. 101
- 117 Juarrea Society, San Adrian de Juarros, Province of Burgos.—Dry pit-coal. 101
- 118 Miró y Cerdá, C., from various towns of the Province of Castellón.—Coal. 101
- 119 Metallurgical Coal-pit Company of Belmez, Peñarroya, Province of Córdoba.—Pit-coal, and coke. 101
- 120 El Veterano Mineral Society, Surroca, Province of Girona.—Pit-coal and coke; rocks, illustrating the geological composition of the coal districts of Surroca and Ogassa. 101
- 121 Board of Agriculture, Industry, & Commerce, Oviedo.—Coke and mineral coal. 101
- 121a Board of Agriculture, Industry, & Commerce, Mieres, Province of Oviedo.—Coal block, weighing 30 cwt. 101
- 122 Coal-pit Society of Muñon, Muñon, Pola de Lena, Province of Oviedo.—Mineral coal. 101
- 123 National Factory of Trubia, Trubia, Province of Oviedo.—Mineral coal and coke. 101
- 124 García de los Rios, Eduardo, Mieres, Province of Oviedo.—Pit-coal. 101
- 125 Vigon, Braulio, Carrándi, Province of Oviedo.—Anthracite coal. 101
- 126 Mines of Castilla, Barruelo, Province of Palencia.—Pit-coal and coke. 101
- 127 Fernandez Castañeda, Telesforo, Reinosa, Province of Santander.—Lignite. 101
- 128 Pereire, Isaac, Villanueva del Río, Province of Seville.—Coal. 101
- 129 Corps of Mining Engineers, Soria.—Impregnated asphaltum. 101
- 130 Peguero, Andrés, Utrillas, Province of Teruel.—Coal. 101
- 131 Sierra, Francisco, Utrillas, Province of Teruel.—Coal. 101
- 132 Estéban, Cristóbal, Libros, Province of Teruel.—Brimstone. 101
- 133 Fernandez, Francisco, Havana, Island of Cuba.—Asphaltum. 101
- 134 Blanquer Ronda, Mariano, Callosa de Ensarria, Province of Alicante.—Black marble. 102
- 135 Serrano, Cardona & Co., Monóvar, Province of Alicante.—Tubing and pillar, with enclosure. 102
- 136 Jover, Francisco, Almería, Province of Almería.—Construction stones. 102
- 136a Abelló y Boda, Pablo, Sarreal, Province of Tarragona.—Alabaster. 102
- 137 Daza, Francisco, Macael, Province of Almería.—Marble. 102
- 138 Tréll, Miguel del, Berja, Province of Almería.—Marble for construction. 102
- 139 Chief Engineer of Highways, Valdemolinos, Province of Avila.—Granite. 102

Minerals, Stone.

- 140 Estevez, Manuel Benito, Badajos.
—Slates. 102
- 143 Provincial Commission of Villagali-
ljo, Province of Burgos.—Alabaster, mar-
ble, calcareous stone, slate, and wheat
stones. 102
- 144 Baldíez, Santiago, Villorobe,
Province of Burgos.—Slates. 102
- 145 Richard & Granducontagne, Bar-
badillo de Herreros, Province of Burgos.
—Gravel. 102
- 146 Corporation of Villamartin, Prov-
ince of Cádiz.—Jasper. 102
- 147 Corporation of Chiclana, Province
of Cádiz.—Jasper. 102
- 148 Corporation of Grazalema, Prov-
ince of Cádiz.—Colored marble. 102
- 149 Nuñez, José María, Cádiz.— Collec-
tion of marbles and jaspers. 102
- 150 Feo y Hermos, Miguel Alfonso,
San Miguel de Abona, Canary Islands.—
Flagstone. 102
- 151 Gamez, Angel, Santa Cruz de Ten-
eriffe, Canary Islands.—Rock, lava, and
volcanic products. 102
- 152 Society of Friends, Las Palmas,
Canary Islands.—Jasper. 102
- 153 Provincial Board of Agriculture,
Calig, Province of Castellon.—Marble and
calcareous stone. 102
- 154 Corporation of Cabra, Province of
Córdoba.—Marbles. 102
- 155 Lopez Seoane, Victor, Ferrol, Prov-
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- 156 Corporation of Portilla de la Sierra,
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- 161 Corporation of Puente Heridoa,
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- 163 Gonzalez Molada, Justo, Alcau-
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- 164 Corporation of Castillo de Locubin,
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- 166 Uleeschouwer, Bellefroid, & Co.,
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- 171 Corporation of Pilofia, Province of
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- 172 Corporation of Salas, Province of
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- 174 Odrizola, Joaquin de, Province of
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- 175 Corporation of Linares, Province
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- 176 Corporation of Balisa, Province of
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- 179 Corporation of Cantalucia, Prov-
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- 193 Lopez, Simon, Torrubia del Campo,
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- 197 Corporation of Moron, Province of
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- 198 Tomás, Antonio, Reus, Province
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- 199 Cervera, Luis, Montblanch, Prov-
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- 200 Barran, Leoncio, Alcalá de Gua-
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- 201 Climent, Hernandez, Francisco,
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- 326 Sierra, Francisco, Utrilla, Province of Teruel.—Jet. 106
- 327 Villalba, Gregorio, Utrilla, Province of Teruel.—Jet. 106
- 328 Sans, Mariano, Patatrubio, Province of Teruel.—Jet. 106
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

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- 264 Corporation of Carballino, Province of Orense.—Thermal medicinal waters. 107
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- 266 Casariego, Cayetano, Prelo, Province of Oviedo.—Alkaline sulphurous waters. 107
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- 268 Calderon Revuelta, Francisco, Alceda, Province of Santander.—Mineral sulphurous water. 107
- 269 Gutierrez de Ceballos, José, Caldas de Benaya, Province of Santander.—Min-eral waters. 107
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- 273 Corporation of Cobeta, Province of Guadalajara.—Iron and iron ore. 111
- 274 Arroyo, Juan, Cervantes, Province of Lugo.—Iron. 111
- 275 Ojea Porras, José, Cervantes, Prov-ince of Lugo.—Iron. 111
- 276 Somosa, Juan Manuel, Caurel, Province of Lugo.—Iron. 111
- 277 Lopez, José Maria, Puertomarin, Province of Lugo.—Iron. 111
- 278 Foundry & Delft Factory of Sar-gadelos, Servo, Province of Lugo.—Cast ingot. 111
- 279 Monriz, Gabriel, Lugo.—Horse bit. 111
- 280 Corral, Francisco, Triacastela, Province of Lugo.—Horse shoes. 111
- 281 Heredia, Sons of M. A., Málaga.—Iron, plates, boiler-plates, etc. 111
- 282 District Mining Engineers, Má-laga.—Iron slag. 111
- 283 National Factory of Trubia, Oviedo.—Iron, steel, etc. 111
- 284 Uria & Pinilla, Navia de Luarea, Province of Oviedo.—Iron ingot. 111
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- 287 Belles, James, Albarracin, Prov-ince of Teruel.—Forged iron. 111
- 288 Valdemoro, Juan Francisco, Teruel.—Forged iron. 111
- 289 Ibarra & Co., Baracaldo, Province of Vizcaya.—Iron. 111
- 290 Corps of Mining Engineers, Hu-elva.—Copper cement and copper. 112
- 291 Villalobos Bros., Berja, Province of Almeria.—Lead. 113
- 292 Mines of Almadén, Province of Ciudad-Real.—Quicksilver ore. 113
- 293 Figueron, Ignacio, Guarroman, Province of Jaen.—Lead in pigs. 113
- 294 Velasco, Bros, Linares, Province of Jaen.—Lead bars. 113
- 295 Macia & Co., Demetrio, Penouta, Province of Orense.—Tin bar. 113
- 296 Vila Yanez, Francisco, Pentes, Province of Orense.—Tin. 113
- 297 El Porvenir Mining Society, Mi-eres, Province of Oviedo.—Tin. 113
- 298 Alen, Pedro & Manuel, Santa Maria de Acibeiro, Province of Pontevedra.—Tin. 113
- 299 Vazquez Gulias, Francisco, Bear-iz, Province of Orense.—Oxide of tin. 113
- 300 Rui & Tolon, Barcelona.—White metal. 114

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- 301 Piquet, Alfonso Emilio, Horcajo de los Montes, Province of Ciudad-Real.—Plan of the mines of Horcajo. 120
- 302 Mines of Almadén, Province of Ciudad-Real.—Plans of subterranean works, machines, etc. 120
- 303 Grappin, G., Salorino, Province of Cáceres.—Model of the mine Constancia. 121
- 304 Sabate Brunet, Salvador, Barcelo-na.—Instruments for the exploration of hard rocks. 120

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

PHILIPPINE ISLANDS.

(South of Nave, Columns 16 to 18.)

Minerals, Ores, Stone, Metallurgical Products.

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| <p>Minerals, Ores, Stones, Mining Products.</p> <p>1 Inspection of Mines, Province of Cebu.—Fossil charcoal and auriferous galena. 100</p> <p>2 Con-ul, Isaac, Province of Cebu.—Sand with fossils, and fossil charcoal. 100</p> <p>3 Manzano, Juan., Province of Albay.—Fossil charcoal. 100</p> <p>4 Perez, Norverto, R.P.Fr., Province of Pangasinan.—Rock argil and volcanic tophus. 100</p> <p>5 Provincial Commission of Camarines Norte.—Oxydized magnetite, chromate of lead, auriferous minerals. 100</p> <p>6 Llanos, R.P.Fr. Antonio, Province of Lepanto.—Minerals and products of furnaces. 100</p> <p>7 Veloso, Pascal, Province of Cebu.—Fossil charcoal and auriferous galena. 100</p> <p>8 Anchuelo, Quiterio, Province of Bulacan.—Oligistic iron. 100</p> <p>9 Inspection of Mines, Province of Camarines Norte.—Cupreous sand with native copper. 100</p> | <p>10 Inspection of Mines, Province of Bulacan.—Oxydized magnetite. 100</p> <p>11 Commission of the District of Benguet, Province of Benguet.—Auriferous sand. 100</p> <p>12 Inspection of Mines, Province of Camarines Sur.—Fossil charcoal. 100</p> <p>13 Inspection of Mines, Province of Albay.—Fossil charcoal, argil, quartzose vein, jet, and sulphur. 100</p> <p>14 Alonzó, Teodoro, Province of Manila.—Amorphous phosphorus. 100</p> <p>15 Inspection of Mines, Province of Lyte.
 a Sulphur. 100
 b Marble. 102</p> <p>16 Municipal Athenæum, Province of Manila.—Marble and jasper. 102</p> <p style="text-align: center;">Metallurgical Products.</p> <p>17 Provincial Commission of Masbate.—Gold-dust and grains. 110</p> <p>18 Commission of the District of Lepanto, Province of Lepanto.—Gold-dust and gold. 110</p> |
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- For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45

PORTUGAL.

(South of South Avenue, Columns 13 to 17.)

Minerals, Ores, Stone.

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| <p>Minerals, Ores, Stones, Mining Products.</p> <p>1 Antonio, Martins, Henriques, & Co., Mont Alto.—Antimony ore from Mont Alto. 100</p> <p>2 Cortes Pereira Antimony Mine Exploring Co.—Antimony ore. 100</p> <p>3 Antimony Mining Co. of Corte Pereira.—Antimony ore. 100</p> <p>4 Blanck, Carlos Frederico, Lisbon.—Antimony ore from Herdade da Prata. 100</p> <p>5 Barriga, Antonio F., Portalegre.—Quartz of Valle de Peso. 100</p> <p>6 Caveira Mining Co., Grandola.—Copper ore from the Caveira mine. 100</p> <p>9 Deliguy, Ernest, Lisbon.—Copper ore. 100</p> <p>10 Elliott, George, & Ferreira Castello, José H., Lisbon.—Iron ores from Ares Zambujal and San Bartholomeu mines. 100</p> <p>11 Elliott, George, Alvito.—Iron ores from San Bartholomeu and Zambujal mines. 100</p> <p>12 Feurheerd, F. Detlof, & Cruickshank, William, Braçal.—Lead and zinc ores from Braçal and Malhada mines; copper ore from Chança. 100</p> <p>13 Giron, D. José, Lagoa do Paço.—Manganese ore. 100</p> <p>14 Gomes, Alonso, Mertola.—Manganese ore from the Faisalo, Ferragudo, and Calvo mines. 100</p> <p>15 Malhada Mining Co., Malhada.—Copper ore from Malhada mine. 100</p> <p>16 Monges Iron Co. (limited), Lisbon.—Iron ore from Serra dos Monges. 100</p> <p>17 Moraes, José Gonçalves, Arronches.—Iron, manganese, and argentiferous lead ore. 100</p> <p>18 Mason & Barry, Mertola.—Copper ores from San Domingo. 100</p> <p>19 Oliveira, Joao Correia, Senhora de Castello.—Tin ore. 100</p> <p>20 Oliveira, Bento Rodrigues de, San Pedro du Cova.—Anthracite, sulphuret of antimony, and galena. 100</p> <p>21 Portuguese Copper Mining Co., Evora.—Specimens of ores from Basalho mine. 100</p> <p>22 Portuguese Mining Co., Covellos.—Tin ore. 100</p> <p>23 Perseverança Co., Oporto.—Antimony ore from Valle d'Ache, and tin ore from Logar d'Aboria. 100</p> | <p>24 Sequeira, Thomas, & Carneiro d'Andrade, Eduardo, Beja.—Copper ore from Juliana mine. 100</p> <p>25 Schreck, Maximiliano, & Kemp, Mauricio, Oporto.—Antimony ore from Campo Redondo; manganese from Pinhal da Cunha. 100</p> <p>26 Serrinha Tin Co. (limited), Oporto.—Tin ore from Serrinha da Casca. 100</p> <p>27 Telhadella Mining Co., Telhadella.—Copper ores. 100</p> <p>28 Tras-os-Montes Mining Co., Bragança.—Tin ore. 100</p> <p>29 Transtagana Mining Co., Lisbon.—Copper ores. 100</p> <p>30 Velho, Agostino Francisco, & others, Villa Real.—Lead ore. 100</p> <p>31 Freixo, Viscount de, Oporto.—Argentiferous lead ore. 100</p> <p>32 Zarzechi, Ladislau, Oporto.—Lead ore from the Pego mine. 100</p> <p>33 Department of Mines, Lisbon.
 <i>a</i> Manganese, tin, and antimony ores; iron pyrites. 100
 <i>b</i> Marbles. 100</p> <p>34 Oliveira, Bento Rodrigues d', S. Pedro de Cova.
 <i>a</i> Lead and antimony ore. 100
 <i>b</i> Mineral coal. 100</p> <p>35 Industrial Union Co., Povoia de Pedoride.—Coal. 100</p> <p>36 Cabral, Frederico A. de V. P., Oporto.—Coal from Monte das Cavadinhos. 100</p> <p>36 Direction of the Public Works of Braga.—Building stones, etc. 100</p> <p>37 Barreto, Antonio Tavares, Santarem.—Limestone from the Granja quarry. 100</p> <p>38 Carvalho, Venceslau M. de, Condeixa a Velha.—Samples of marbles from Condeixa quarries. 100</p> <p>39 Brites, Augusto Pereira, Torres Novas.—Building stone. 100</p> <p>40 Direction of the Public Works of Vianna do Castello.—Building materials. 100</p> <p>41 Vallongo Slate & Marble Quarries Co., Oporto.—Slabs and roofing slate. 100</p> <p>42 Governor of the Civil District of Ponte Delgada.—Building materials. 100</p> <p>44 Rato, Antonio Moreira, Lisbon.—Marbles. 100</p> <p>45 Santos, Joaquim Antunes dos, Lisbon.—Samples of marble. 100</p> <p>46 Salles, Joaquim José de, Lisbon.—Marbles. 100</p> |
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Stone, Minerals, Metallurgical Products, Engineering.

- 47 Salles, Germano José de, Lisbon.—Marbles. 102
- 48 Bessonni, Viscount de, Cintra.—Marbles. 102
- 49 Ponta Delgada, Committee of.—Building materials. 102
- 50 Direction of the Public Works of Vizeu, Vizeu.—Building materials. 102
- 51 Direction of the Public Works of Oporto, Oporto.—Building materials. 102
- 52 Direction of the Public Works of Aveiro, Aveiro.—Building materials. 102
- 53 Direction of the Public Works of the Mondego river & Figueira bar, Coimbra.—Building materials. 102
- 54 Direction of the Public Works of Coimbra, Coimbra.—Building materials of the district. 102
- 55 Direction of the Public Works of Leiria, Leiria.—Building materials of the district. 102
- 56 Extremoz Marble Quarrying Co., Extremoz.—Marbles. 102
- 57 Rasca Cement Exploring Company, Lisbon.—Hydraulic cement. 103
- 58 Parochial Board of Sabacheira, Sabacheira.—Limestone. 103
- 59 Governor of the Civil District of Portalegre.—Phosphate of lime from Marvão. 103
- 60 Lisbon Dyeing & Cotton Printing Company, Lisbon.—Lime. 103
- 61 Ponta Delgada, Committee of.
a Pozzolana and pumice. 103
b Mineral waters of San Miguel, and analysis. 107
- 62 Neuville, Louis, Lisbon.—Kaolin. 104
- 63 Coelho, Francisco, Torres Novas.—Clay. 104
- 64 Manilha, Francisco dos Santos Lopes, Valongo.—Whetstones. 106

- 65 Vidago Mineral Waters Company, Lisbon.—Mineral waters. 10
- 66 Pedras Salgadas Mineral Waters Company, Oporto.—Mineral waters. 107
- 67 Janson, J. H., & Co., Lisbon.—Soda water. 107
- 69 Freitas, Albino, José, Ega.—Mineral waters. 107
- 70 Fialho & Bro., Lisbon.—Mineral waters. 107
- 71 Committee of Administration, Sulphur baths of Castelo de Vide.—Sulphurous mineral waters. 107

Metallurgical Products.

- 73 Mason & Barry, São Domingos.—Gold bar and silver bar. 110
- 74 Ferreira & Souza, Oporto.—Gold leaf. 110
- 75 Cardozo, José Pereira, Jr., Oporto.
a Gold and silver leaf. 110
b Aluminium, platina, and tin leaf. 113
- 76 Beirrolas, Manuel Antonio, Gollega.—Horse shoes. 111
- 77 Department of Mines, Lisbon.—Iron from Moncorvo. 111
- 78 Perseverança Company, Oporto.—Tin ingot. 113
- 79 Tras-os-Montes Mining Company, Braganza.—Tin ingot. 113

Mining Engineering.

- 80 Department of Mines, Lisbon.—Plans of mines. 121
- 81 Mason & Barry, Mertola.—Plans of mines; model of a Roman wheel. 121
- 82 Silva, S. A. P. da, & F. A. Marques de Moura, Aveiro.—Plan of a salt pit, with description of same. 121

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

TURKEY.

(South of Nave, Columns 14 to 17.)

Minerals, Ores, Stone.

Minerals, Ores, Stone, Mining Products.

- | | | |
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| 1 | Wilkinson, Rizzo, & Co., Koumarlar, Dardanelles.—Sulphur ore, sulphurous copper. | 100 |
| 2 | Tapa, Daniel, Cian, Dardanelles.—Lead ore. | 100 |
| 3 | Sarral, Mouradite, Trebizond.—Argentiferous galena. | 100 |
| 4 | Sarral, Lokhia, Trebizond.—Iron pyrites. | 100 |
| 5 | Schiria Agha, Tirepola, Trebizond.—Copper pyrites. | 100 |
| 6 | Soleiman, Gueugine, Trebizond.—Galena. | 100 |
| 7 | Omer, Oglou Osman, Lokhia, Trebizond.—Galena. | 100 |
| 8 | Omer, Effendi, Ordou, Trebizond.—Argentiferous galena. | 100 |
| 9 | Nimetoulah, Trebeiau, Trebizond.—Copper ore. | 100 |
| 10 | Nimetoulah, Kurelli, Trebizond.—Copper pyrites. | 100 |
| 11 | Pappasaki, Nicola, Sfakia, Crète.—Lignite. | 100 |
| 12 | Nimetoulah, Mouradite, Trebizond.—Argentiferous galena. | 100 |
| 13 | Moustapha, Effendi, Cherkech, Castamouni.—Chalk. | 100 |
| 14 | Gonssan, Government of, Adana.—Iron pyrites. | 100 |
| 15 | Multesim Oulah, Tireboli, Trebizond.—Ferruginous sediment. | 100 |
| 16 | Multesim, Abdoulah, Tirebole, Trebizond.—Argentiferous galena, copper pyrites. | 100 |
| 17 | Mandené, Diarbekir.—Silver ore. | 100 |
| 18 | Multesim, Tireboli, Trebizond.—Cupreous pyrites. | 100 |
| 19 | Ligory, Effendi, Stankeney, Dardanelles.
a Manganese, iron ore, and sulphur ore. | 100 |
| | b Emery. | 106 |
| 20 | Kara-Hissar, Government of, Sivas.—Argentiferous galena, aluminous earth. | 100 |
| 21 | Ali, Hadji Diarbekir.—Brimstone of the desert. | 100 |
| 22 | Moustapha, Hadji, Nich, Danube.—Iron stone. | 100 |
| 23 | Adrianople, Government of.
a Powdered mica. | 100 |
| | b Coal. | 101 |
| | c Sand for mouldings. | 104 |
| 24 | Debré, Government of, Monastir.—Sulphate of chalk. | 100 |
| 25 | Aydin, Government of.—Argentiferous galena, lignite, iron ore. | 100 |
| 26 | Adana, Government of.—Sulphate of chalk and galena. | 100 |
| 27 | Gumuch Hané, Government of, Trebizond.—Argentiferous and cupreous galena. | 100 |
| 28 | Ichkodra, Government of, Monastir.—Sulphur ore. | 100 |
| 29 | Ichkloura, Government of, Monastir.—Brimstone, arsenical ore, and sulphate of copper. | 100 |
| 30 | Havret, Government of, Salonica.—Argentiferous galena. | 100 |
| 31 | Topouz, Oglou, Imbros, Dardanelles.
a Lead ore. | 100 |
| | b Coal. | 101 |
| 32 | Koniah, Government of.—Brimstone. | 100 |
| 33 | Micheré, Government of, Yanina.—Lignite. | 100 |
| 34 | Medina, Government of, Hidjaz.—Rock crystals. | 100 |
| 35 | Maghlé, Government of, Aydin.—Argentiferous galena, iron and chrome ores. | 100 |
| 36 | Millitinous, Government of, Samos.
a Talc. | 100 |
| | b Yellow earth, argil. | 104 |
| 37 | Lapsaki, Government of, Dardanelles.—Brimstone. | 100 |
| 38 | Karssendi, Government of, Adana.
a Copper and silver ore, lignite and galena. | 100 |
| | b Grit sandstone. | 108 |
| 39 | Tdomane, Government of, Yanina.—Galena. | 108 |
| 40 | Trebizond, Government of.—Galena. | 100 |
| 41 | Uskup, Government of, Monastir.—Aluminous earth. | 100 |
| 42 | Samos, Government of.
a Galena. | 100 |
| | b White and colored marble. | 108 |
| | c Argil. | 104 |
| | d Emery. | 106 |
| 43 | Suleimaneeyah, Government of, Bagdad.
a Melted brimstone, cut rock crystal. | 100 |
| | b Argil. | 104 |
| 44 | Smyrna, Government of, Aydin.—
a Lignite, argentiferous galena, iron ore, manganese. | 100 |
| | b Emery, grindstones. | 106 |
| 45 | Syros, Government of, Salonica.—Lignite. | 100 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 47-48.

Minerals, Ores, Stone, Metallurgical Products.

46 Souké, Government of, Aydin.	
a Iron ore.	100
b Red sandstone.	102
c Tripoli.	104
d Emery.	106
47 Saroukhan, Government of, Aydin.	
a Chrome ore.	100
b Mineral water.	107
48 Samakon Factory, Sophia, Danube.	
—Iron ore.	100
49 Ergain, Diarbekir.—Copper ore.	100
50 Donel Aghop, Raine, Dardanelles.—	
Manganese.	100
51 Dardalah, Mouradile, Trebizond.—	
Copper pyrites.	100
52 Pappazaki, Dimitri, Sfakia, Crète.—	
Argillous talc.	100
53 Abdi Bey, Myteline, Dardanelles.—	
Chrome.	100
54 Abdoullah Bey, Myteline, Dardanelles.	
a Antimony.	100
b Emery.	106
55 Azit Anelé, Olevek, Trebizond.—	
Manganese.	100
56 Ulmusarati, Ahmed, Tripoli, Tripoli.	
—Crude brimstone.	100
57 Administration of the Mines, Constantinople.—Collection of ores.	100
58 Mehemed Agha, Aleppo.—Coal.	101
59 Bridore, Government of, Bosnia.—	
Lignite.	101
60 Djesiré, Diarbekir.—Coal.	101
61 Kratova, Government of, Monastir.—	
Coal.	101
62 Mosul, Government of, Bagdad.—	
Coal.	101
63 Nich, Government of, Danube.—	
Coal.	101
64 Panaloko, Government of, Bosnia.—	
Coal.	101
65 Ychtip Government of, Monastir.—	
Coal.	101
66 Ereili, Castamouni, Castamouni.—	
Lignite.	101
67 Serkiz, Aleppo.—Red marble.	102
68 Rasoula, Aleppo.—Yellow marble,	
calcareous stone.	102
69 Koyondja, Government of, Bosnia.—	
Marble.	102
70 Nenedés, Government of, Samos.—	
White marble.	102
71 Nicolaki, Jovan Oglou, Dardanelles,	
Dardanelles.—Cement.	103
72 Sfakia, Government of, Crète.—	
Crude lime.	103
73 Naoum Cassam, Aleppo.—Argil.	104

74 Baktiar Bez., Panaloko, Bosnia.—	
Pipe-clay.	104
75 Ali Effendi, Angora.—Argil.	104
76 Myteline, Government of, Dardanelles.—	
Graphite.	105
77 Osman Bin Mohamed, Bridore,	
Bosnia.—Emery.	106
78 Ali, Hadji, Teké, Koniah.—Emery.	106
79 Yildis-Ki, Government of, Sivas.	
a Emery.	106
b Mineral water.	107
80 Bendissa, Government of, Aleppo.—	
Hot mineral water.	107
81 Gearichvous, Government of, Aleppo.—	
Hot mineral water.	107
82 Erwindjan, Government of, Erzeroum.—	
Mineral water.	107
83 Marach, Government of, Aleppo.—	
Mineral waters.	107
84 Rikanlé, Government of, Aleppo.—	
Mineral water.	107
86 Zeltoun, Government of, Aleppo.—	
Hot mineral water.	107
87 Volonia, Government of, Yanina.—	
Mineral water.	107
88 Central Drug Store, della Sudda's,	
Inigueul, Ichitli.—Mineral water.	107
89 Bin Cachi Mehemed, Aleppo.—	
Mineral water.	107

Metallurgical Products.

90 Giovan, Siros, Salonica.—Gold-	
dust.	110
91 Mehmeda, Marach, Aleppo.—	
Horse shoes and nails.	111
92 Moustapha, Hadji, Aleppo.—Iron.	111
93 Ak-Hissar, Government of, Bosnia.—	
Iron.	111
94 Kerschove, Government of, Bosnia.—	
Iron.	111
95 Varach, Government of, Bosnia.—	
Iron.	111
96 Karasendi, Government of, Adana.—	
Crude iron.	111
97 Kara-Hissar, Government of, Sivas.	
a Iron.	111
b Lead slag.	113
98 Samakon Factory, Sophia, Danube.—	
Iron.	111
99 Abass Agha, Kuspuk, Monastir.—	
Horse shoes.	111
100 Ligory Effendi, Stankeny, Dardanelles.—	
Copper.	119
101 Samos, Government of.—Zinc.	113

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

RUSSIA.

(South of Nave, Columns 19 to 23.)

Minerals, Ores, Stone, Metallurgical Products.

Minerals, Ores, Stones, Mining Products.

- 1 Yoogoff Iron Works, Government of Perm.—Copper ores. 100
- 2 Pootiloff Iron Works Company, St. Petersburg.—Iron ores. 100
- 3 Administration of the Goroblagodati Mining District, Government of Perm.—Magnetic and other iron ores. 100
- 4 Administration of the Mining Districts in Western Poland.
 - a Iron ore, calamine, and lead blende. 100
 - b Coal. 101
 - c Refractory clay. 104
- 5 Administration of the Olonets Mining District.—Lake iron ore. 100
- 6 Rogosloosky Crown Copper Works, Government of Perm.—Copper ores. 100
- 7 Demidoff, Paul, Prince of San Donato, Nigni Tagil, Ural Mountains, Government of Perm.—Iron and copper ores. 100
- 8 Gessrick & Woerfel, St. Petersburg.—Siberian minerals and hard stones. 100
- 9 Kniaze Michailoff Crown Steel Works, Government of Orenburg.—Magnetic iron ore. 100
- 10 Mining School, St. Petersburg.—Minerals and paleontological collection. 100
- 11 Bashkoff, Basil, Bogoyavlensk, & Verkhotoorji, Government of Oefa.—Copper ores. 100
- 12 Russian Rail Manufacturing Company, Government of Riazan, District of Trensk.—Iron ore. 100
- 13 Saltkinsky Crown Iron Works, Government of Orenburg.—Brown and sparry iron ores. 100
- 14 Sidoroff, Michael, St. Petersburg.
 - a Iron ore. (Northern limits of Russia.) 100
 - b Siberian graphite from the district of Toorookhansk. 105
- 15 Yakovleff, John, Alexandria, Government of Kherson.
 - a Iron ore. 100
 - b Graphite. 105
- 16 Russian Navigation & Trade Company, Odessa.—Specimens of anthracite coal. 101
- 18 Majervsky, T., & Stochelsky, M., Government of Pietrkoff, district of Bendzin.—Coal. 101
- 19 Sidoroff, Michael, St. Petersburg.—Bituminous coal, from underground fire burning since 1700. 101

- 20 Zievers, B. Wessenberg, Government of Est-land.—Portland cement. 103
- 21 Schmidt, C., Riga.—Cement. 103
- 22 Sytenko, John, Moscow.—Limestone and plaster. 103
- 23 Lasin, Nicolas. Moscow.—Mineral water. 107

Metallurgical Products.

- 27 Mining Department, St. Petersburg.—Native platinum, osmiridium (purified), and platinum. 110
- 28 Miasky Government Gold Mines, Government of Orenburg.—Gold-bearing sands; illustration of gold washing machines. 110
- 29 Votkinsk Crown Iron Works, Government of Perm.—Iron (in bars), and cast steel. 111
- 30 Pootiloff Iron Works Company, St. Petersburg.—Cast and wrought iron, steel, twisted rail. 111
- 31 Gun Foundry, Perm.—Cast and wrought iron; steel sections of cast steel guns. 111
- 32 Kama Armor Plate Works, Government of Perm.—Armor plate 111
- 33 Administration of the Goroblagodati Mining District, Government of Perm.—Cast iron projectile. 111
- 34 Administration of the Olonets Mining Districts.—Cast and wrought iron; section of cast iron guns. 111
- 35 Demidoff, Paul, Prince of San Donato, Nigni Tagil, Ural Mountains, Government of Perm.
 - a Iron; pig bars, ingots, rails, sheets, slabs, and flakes. 111
 - b Copper ingots, bars, sheets; illustrations of style of working. 112
- 36 Russian Rail Manufacturing Company, Government of Riazan, District of Trensk.—Cast iron and iron wire. 111
- 37 Satkinsky Crown Iron Works, Government of Orenburg.—Cast iron. 111
- 38 Admiralty Tyora Works, near St. Petersburg.—Boiler plates. 111
- 39 Yoogoo Copper Works, Government of Perm.—Copper (in bars and ingots), and products of working. 112
- 40 Pashroff, Basil, Bogoyavlensk & Vennibotoorji, Copper Works, Government of Oefa.—Copper ingots, bars, rolled wire, and spangles; illustrations of methods of working. 112

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 97-95.

Metallurgical Products, Mining Engineering.

- 42 Ragoalovsky, Crown Copper Works, Government of Perma.—Illustrations of productions of copper. 113
- 43 Rastergaef, Gregory, St. Petersburg.—Tinned iron sheets. 114

Mining Engineering.

- 44 Administration of Mines in Finland.—Helsingfors' editions and reports on local mine engineering and geology. 120

- 45 Scientific Committee of the Mining Department, St. Petersburg.—Special editions and periodicals on mine engineering. 120
- 46 Demidoff, Paul, Prince of San Donati, Nizni Tagil, District of Ural Mountains, Government of Perma.—Maps, plans, and views of this mining district; illustrations of gold washing process. 120
- 47 Babin, Victor, & Lepooshinsky, Moscow.—Illustrations of boring process, artesian well, and apparatus. 120

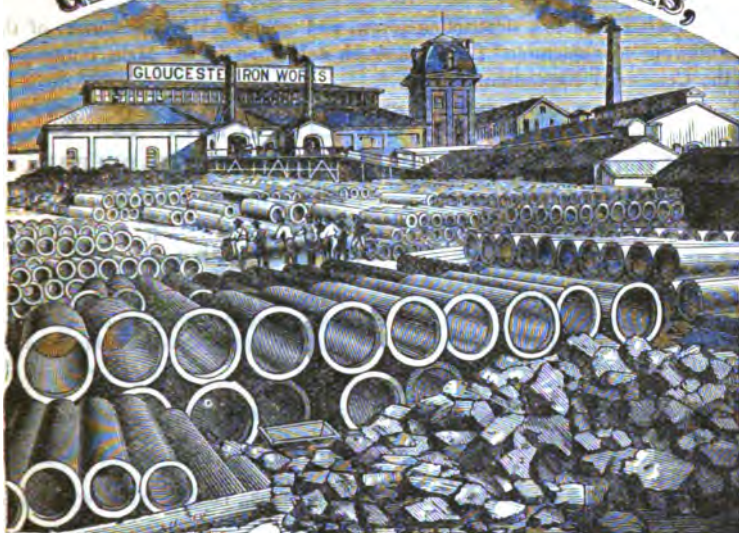
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

David S. Brown, Pres't.
Benj. Chew, Treas.

Jas. P. Michellon, Sec'y.
Wm. Sexton, Sup't.

GLOUCESTER IRON WORKS,

GLOUCESTER CITY, NEW JERSEY.



Cast Iron Gas & Water Pipes, Stop Valves, Fire Hydrants, Gas Holders, &c.

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PHILADELPHIA LEAD WORKS.

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MANUFACTURERS OF

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Linseed Oil, Painters' Colors.

BUSINESS OFFICE, 231 SOUTH FRONT STREET,
PHILADELPHIA.

FIRE ARMS, Etc.

PRICES quoted, description given, and some SAMPLES shown, of the following Manufacturers' Goods, now on exhibition in the Main Building of the Centennial Exposition.

JOS. C. GRUBB & CO.,

Manufacturers' Agents.

712 Market St., PHILADELPHIA.

J. RUPERTUS, Empire Revolvers.
 " C. SHARPS, Pat. 4 Shot Re-
 peaters.
 F. WESSON, Breech-Loading Rifles.
 " " Target Pistols.
 WINCHESTER, Reptg. Rifles and Cartridges.
 SHARPS, Target and Sporting Rifles.
 FOREHAND & WADSWORTH, Revolvers.
 COLT'S Patent Firearm Mfg. Co. "

SMITH & WESON, Revolvers.
 WHITNEY, Rifles and "
 REMINGTON, " and Breech-
 loading Double Guns.
 AMERICAN FLASK AND CAP Company.
 AMERICAN PERCUSSION CAP Association.
 WM. G. RAWBONE, Patent Creasers.
 PARKER BROS., American Breechloading
 Guns.

JAMES PURDEY, London, Breechload'g Guns.
 JOHN RIGBY & CO., " " "
 E. M. REILLY & CO., " " "
 J. LANG & SONS, " " "
 ALBERT LANCASTER " " "
 CHAS. LANCASTER, " " "
 ALEX. HENRY, Edinburgh, " "
 Harpoon and Bomb Lance Guns.
 W. & C. SCOTT & SON, Bir-
 mingham, " "

P. WEBLEY & SON, Birmingham, Breech-
 loading Guns.
 W. W. GREENER, Birmingham, Breechloading
 Guns
 ELEY BROS., London, Shells, Wads, Caps,
 etc
 PIGOU, WILKS & LAURENCE, London,
 Gunpowder
 SELLIER & BELLOT, Percussion Caps.

BAEDER, ADAMSON & CO.,

MANUFACTURERS OF

GLUE, SAND PAPER,



GROUND FLINT AND EMERY.

EMERY PAPER AND EMERY CLOTH,

CURLED HAIR AND STUFFING HAIR,

MOSS, COW-HIDE WHIPS, FELT HAIR, AND FELTING.

FACTORIES:

PHILADELPHIA, Pa.
 NEWARK, N. J.
 WOBURN, Mass.

STORES:

Philadelphia, 730 Market Street.
 New York, 67 Beekman Street.
 Boston, 143 Milk Street.
 Chicago, 182 Lake Street.

DEPT. II.—MANUFACTURES.

UNITED STATES.

Chemicals, Pharmaceutical Preparations.

Chemical Manufactures.

- 1 Gantz, Geo. F., & Co., New York, N. Y.—Baking powder. T 47. 200
- 1a Feuchtwanger, L., & Co., New York, N. Y.—Polytechnic chemicals. T 47. 200
- 2 Royal Baking Powder Co., New York, N. Y.—T 47. 200
 - a Baking powder. 200
 - b Flavoring extracts, celery salt 203
- 2a Ohio River Salt Co., Pomeroy, O.—Salt. V 63. 200
- 3 Hance Bros. & White, Philadelphia, Pa.—Solid and fluid extracts, sugar-coated pills. P 43. 200
- 3a Procter, Wm., jr., & Co., Philadelphia, Pa.—Saccharated pepsin. P 48. 200
- 4 Fries, Alex., & Bros., New York, N. Y.—P 48. 200
 - a Chemicals, coloring, etc. 200
 - b Artificial fruit and liquor essences, flavors for cigars. 203
- 5 Gordon, W. J. M., Cincinnati, O.—Chemicals, glycerine, sugar-coated pills, podophyllin, hydrastine. P 47. 200
- 6 Rosengarten & Sons, Philadelphia, Pa.—Sulphates of quinine and morphine, and other chemicals for use in medicine and the arts. P 41. 200
- 7 Warner, Wm. R., & Co., Philadelphia, Pa.—Sugar-coated pills and pharmaceutical preparations. P 43. 200
- 7a Hirsh, Joseph M., Chicago, Ill.—Chemicals, albumen, dried blood, alizarine, carbolic acid, coal tar products, etc. P 47. 200
- 8 Campbell, Sam'l, Philadelphia, Pa.—P 47. 200
 - a Medicinal fluid extracts. 200
 - b Perfumery and toilet articles. 203
- 8a Williamson, D. D., New York, N. Y.—Bisulphite of lime, finings, beer coloring, cleansing powders, tannate of soda, etc. P 49. 200
- 9 Kreitzer, M. C., Philadelphia, Pa.—Medicines, perfumery, etc., in a marble show case. The marble is from a new quarry just opening in Lebanon Valley, Pa. T 43. 200
- 9a Scheffer, E., Louisville, Ky.—Preparations of pepsin. P 48. 200
- 10 Keasbey & Mattison, Philadelphia, Pa.—Granular effervescent preparations, gelatine-coated pills, pharmaceutical specialties. P 43. 200
- 10a Hance, R. A., Philadelphia, Pa.—Fluid extracts. T 43. 200
- 11 Twining & Schiedt, Philadelphia, Pa.—Fluid and solid extracts, sugar-coated pills, elixirs, concentrated preparations, chemicals, syrups, tinctures, powdered drugs. T 41. 200
- 11a Shoemaker, Robert, & Co., Philadelphia, Pa.—Fluid extracts; ground, crushed, and powdered drugs and spices. P 43. 200
- 12 Powers & Weightman, Philadelphia, Pa.—Sulphate of quinia, salts of cinchona barks, sulphate of morphia; chemicals, medicinal, photographic, and for the arts. P 41. 200
- 12a Morrison, Arthur B., Portland, Me.—Gold and silver solution for electrotyping without a battery; restorative for cleaning jewelry. T 57. 200
- 13 Harrison Brothers & Co., Philadelphia, Pa.—P 41. 200
 - a Chemicals, alum, sugars of lead, acetates of lime; sulphuric, nitric, muriatic, acetic, and pyroligneous acids. 200
 - b White lead, dry and in oil; colors for painters, lithographers, and calico printing. 208
- 13a Central Ohio Salt Co., Columbus, O.—Salt from Athens county. V 63. 200
- 14 Doerr & Sloan, Philadelphia, Pa.—Lacto-phosphate of lime, iron, and cod-liver oil. T 40. 200
- 15 Mellor & Rittenhouse, Philadelphia, Pa.—Licorice and pharmaceutical extracts; glycerine composition for printers' rollers. P 41. 200
- 16 Stearns, Frederick, Detroit, Mich.—Pharmaceutical products peculiar to United States, representing his catalogue, number 75, 132 pages, 168 classes, and 10,000 items. P 41. 200
- 17 Dunton, Jacob, & Co., Philadelphia, Pa.—Pills. Compressed lenticular non-excipient porous pills, made from dried powders, by pressure, without admixture; are as soluble after ten years as when first made, and much more readily dissolved than any freshly-made excipient pill. Process and machinery patented. T 40. 200
- 18 Simes, Wm. F., & Son, Philadelphia, Pa.—Camphor, sublimed and compressed into convenient blocks of 1 ounce and 4 ounces; is very durable, strong in natural oil, and perfectly pure. Patented. P 41. 200
- 19 Tacony Chemical Works, Philadelphia, Pa.—Acids, chemical salts, etc. T 42. 200

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-95.

Chemicals, Pharmaceutical Preparations.

- 20 Dreyfus, J. G., & Co., New York, N. Y.—Cream of tartar. T 43. 200
- 21 Mockridge, E., & Co., Philadelphia, Pa.—Azumeca. T 47. 200
- 22 Bullock & Crenshaw, Philadelphia, Pa.—Sugar-coated pills; United States Pharmacopoeia and recipes of eminent physicians, accurately compounded, readily soluble, and strictly reliable in every particular. P 41. 200
- 23 Pennsylvania Salt Manufacturing Co., Philadelphia, Pa.—Kryolite, alum, lye, sodas, acids, chlo. calcium, and alumina. T 42. 200
- 24 Savage, Keyser, & Stovell, Philadelphia, Pa.—Acids and salts. T 44. 200
- 25 Philadelphia Quarts Co., 9 North Front street, Philadelphia, Pa.—Silicate of soda, in its various forms, specially adapted to the different uses. T 45. 200
- 26 Coyne, Geo. S., Philadelphia, Pa.—Manufacturer and importer of dyewood liquor extracts, acids, dyestuffs, and chemicals generally. (Stores, 104 and 127 Church street, Philadelphia, Pa.; Chester Chemical Works, Delaware county, Pa.) T 44. 200
 a Acids and chemicals. 200
 b Dyestuffs. 202
- 28 Condit, Hauson, & Co., Newark, N. J.—Metallic salts, electro-plating materials; hatters', dyers', jewelers', and manufacturers' chemicals. P 49. 200
- 29 Baker, H. J., & Bro., New York, N. Y.—Refined saltpetre, borax and camphor; epsom salts, castor oil. T 49. 200
- 30 Lewis, John T., & Bros., Philadelphia, Pa.—T 42. 200
 a Acids. 200
 b White and red lead; litharge, orange mineral; paints, colors, and oils. 200
- 31 Silliman Chemical Works, Philadelphia, Pa.—Chemical products, from tar and fine chemicals, known as Fresenius's tests. P 43. 200
- 32 Wyeth, John, & Bro., Philadelphia, Pa.—Pharmaceutical preparations, drugs, and compressed pills. P 41. 200
- 33 Waterloo Yeast Co., New York, N. Y.—Dry hop yeast cakes. T 47. 200
- 34 McKesson & Robbins, 91 Fulton street, New York, N. Y.—Gelatine-coated pills, aromatic elixirs, medicinal syrups; fluid and solid extracts, perfume extracts, essential oils, indigenous crude drugs. P 43. 200
- 35 Benjamin, E. B., New York, N. Y.—Pure chemicals. N 57. 200
- 36 Kuribaum & Co., Philadelphia, Pa.—Refined camphor and chemical preparations. P 49. 200
- 38 Libe, John C., Philadelphia, Pa.—Baking yeast powder. T 47. 200
- 39 McIlvaine Brothers, Philadelphia, Pa.—Ground and powdered drugs, paints, etc. P 43. 200
- 40 Smith, Hanway, & Co., Baltimore, Md.—Baking powder. T 47. 200
- 42 Chessman, W. H., Boston, Mass.—Pure lime from Mississippi Lime Co., Highgate Springs, Vt. T 50. 200
- 43 Brown, Frederick, Philadelphia, Pa.—Essence of Jamaica ginger, and other pharmaceutical preparations. P 41. 200
- 44 Hagner Drug Milling Co., Philadelphia, Pa.—Powdering, grinding, flaking, crushing, and other mill work. T 51. 200
- 45 Bower, Henry, Philadelphia, Pa.—Glycerine, stearic and oleic acids; prussiate of potash, sulphate of ammonia. T 43. 200
- 46 Browning & Brothers, Philadelphia, Pa.—T 44. 200
 a Acetic acid, acetate of lime, lead, alumina and iron, sulph. copper. 200
 b Naphtha. 201
 c Dyewoods. 202
- 48 Leidy, Francis D., Philadelphia, Pa.—Soap powder, washing crystals. T 50. 200
- 50 Bean, Lewis U., Philadelphia, Pa.—P 49. 200
 a Pharmaceutical preparations, drugs, etc. 200
 b Paints—dry and in oil. 202
- 51 Pfizer, Chas., & Co., New York, N. Y.—Pharmaceutical and chemical products; cream tartar, tartaric acid, refined borax, and camphor. P 49. 200
- 52 Preston & Merrill, Boston, Mass.—P 48. 200
 a Yeast powder. 200
 b Sugar of lemons, flavoring extracts. 203
- 53 Meyer, Jas., jr., & Co., New York, N. Y.—Glondin disinfectant. Inodorous and colorless; does not injure any object or material it may be applied to; destroys and neutralizes almost instantly the most offensive odors, vapors, or gases; arrests putrefaction, prevents contagion, and is infallible as an agent for embalming. P 49. 200
- 55 Billings, Clapp, & Co., Boston, Mass.—Chemicals. Manufacturers of acids, alkalies, ethers, chloroforms, podophyllin, preparations of gold, silver, tin, zinc, lead, iron, bismuth, mercury, and trade chemicals. Price lists and special quotations sent on application. T 45. 200
- 56 Mackeown, Bower, Ellis, & Co., Philadelphia, Pa.—Drugs and chemicals. T 43. 200
- 58 Phillips & Jacobs, Philadelphia, Pa.—Illustration of the recovery of gold and silver from wastes in the industrial arts. T 46. 200
- 59 Dooley & Bro., New York, N. Y.—Baking powder. T 49. 200
- 60 White, Charles T., & Co., No. 54 Maiden Lane, New York.—Pharmaceutical chemicals, quinia, morphia, strychnia, and their salts; iodides, bromides, acids C. P., etc. Medals of merit for appearance and purity, Am. Institute, 1867-1870; Cincinnati, 1870; Cordova (Arg. Repub.), 1870; Vienna, 1873. P 43. 200
- 61 United States Salicylic Acid Works, New York, N. Y.—Salicylic acid and its preparations. P 47. 200
- 62 Gray, Daniel H., New York, N. Y.—Brimstone and flour of sulphur. T 48. 200
- 63 Follett, O. S., New York, N. Y.—White sugar of lead, chloroform, acetic acid, and vinegar. P 47. 200
- 64 King, Wm., Son, & Co., Philadelphia, Pa.—Crude and refined petroleum. T 41. 201

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

Oils, Soap, Candles.

- 64s Fraser Lubricator Co., Jersey City, N. J.—Axle grease. T 50. 201
- 65 Pease, F. S. Buffalo, N. Y.—Pease's "Premium Oils." Improved Oils for Railroads, Steamers, and all classes of Machinery and Burning. P 41. 201
- 66 Baker, John C., & Co., Philadelphia, Pa.—Medicinal cod-liver oil, pure, and in combination with other agents. P 43. 201
- 66s Leonard & Ellis, New York, N. Y.—Cylinder oil. T 54. 201
- 67 Eavenson, Jones, & Sons, Philadelphia, Pa.—Laundry soaps. T 43. 201
- 68 Morgan's, Enoch, Sons, New York, N. Y.—Sapollin for cleaning and polishing; hand sapollin, for toilet. T 48. 201
- 69 Cragin, I. L., & Co., Philadelphia, Pa.—Dobbins' electric soap and materials used in its manufacture. P 47. 201
- 70 Wrigley, Wm., & Co., Philadelphia, Pa.—Mineral scouring soap. T 44. 201
- 71 McKeone, Van Haagen, & Co., Philadelphia, Pa.—Soaps, oils, perfumery, soap stock, candles. T 39. 201
- 72 Conway, Wm., Philadelphia, Pa.—Laundry soaps. T 49. 201
- 73 Marx & Rawolle, New York, N. Y.—T 40. 201
- 4 Glycerine. 201
- 5 Lacquers and French varnishes, bleached and refined gum shellac, sealing wax. 208
- 74 Gest & Atkinson, Cincinnati, O.—Lard, tallow, grease; lubricating, burning, and paint oils; car candles. T 39. 201
- 75 Loper & Doughten, Philadelphia, Pa.—Naval stores. T 43. 201
- 76 Faller, Geo. J., Philadelphia, Pa.—Sewing machine oils. T 44. 201
- 7 Dreydoppel, Wm., Philadelphia, Pa.—Borax soap. T 50. 201
- 78 Elkins, Wm. L., Philadelphia, Pa.—Petroleum, lubricating oils, gasoline, and deodorized naphtha. T 49. 201
- 79 Page, Kidder, & Fletcher, New York, N. Y.—Coal tar products and their uses. T 42. 201
- 80 Aladdin Oil Co., Pittsburg, Pa.—Illuminating and lubricating oils, paraffine, etc. T 43. 201
- 81 Robinson Bros. & Co., Boston, Mass.—Toilet soaps, silver soap. P 47. 201
- 82 Williams, J. B., & Co., Glastonbury, Conn.—Soaps. Manufacturers of Genuine Yankee, Barber's Bar, Clipper, Pumice, Bath, Pocket Shaving, Verbena Cream, and other popular shaving and toilet soaps. P 47. 201
- 83 Brown, Robt. B., & Co., St. Louis, Mo.—Castor oil. T 50. 201
- 85 Marvin Brothers & Bartlett, Portsmouth, N. H.—Cod liver oil. T 47. 201
- 86 Kelley, Ezra, New Bedford, Mass.—Watchmakers', mechanics', and sewing machine oils. T 45. 201
- 87 Hartmann, Laist, & Co., Cincinnati, O.—Glycerine. T 50. 201
- 88 Crew, Moore, & Levick, Philadelphia, Pa.—Illuminating and lubricating oils. T 46. 201
- 89 Pratt, Charles & Co., New York, N. Y.—Petroleum and its products, and packages for same. Model of refinery and astral oil works. T 43. 201
- 91 Smith, Chas. K., & Co., Philadelphia, Pa.—Burning and lubricating petroleum oils, miners' and railroad oils. T 40. 201
- 92 Nye, Wm. F., New Bedford, Mass.—Sewing machine, watch, and clock oils. These oils are obtained from the head of the sperm whale, the black fish, and porpoise, and most carefully refined for the purposes mentioned, only during the severest cold of winter. T 49. 201
- 93 Houghton, E. F., & Co., Philadelphia, Pa.—Cosmoline, for medical purposes; cylinder and machinery oils, hydrocarbonated bone black. T 40. 201
- 94 Boyé, M. H., & Lewis, Geo. T., Philadelphia, Pa.—Cottonseed oil, manufactured and refined. T 50. 201
- 95 Harkness, N. W., Philadelphia, Pa.—Refined petroleum, naphtha, residuum; natural lubricating oils, Harkness' wells, W. Va.; filtering apparatus. T 43. 201
- 96 Eastman & Brooke, Philadelphia, Pa.—P 47. 201
- 4 Soaps. 201
- 5 Washing blue, Russian dressing, and French blacking. 208
- 97 Devos Manufacturing Co., New York, N. Y.—Cans with Devos' faucet nozzle-top, and samples of oil. T 40. 201
- 98 Day & Frick, Philadelphia, Pa.—Laundry soap; polishes for cleaning paint, metal, etc. T 46. 201
- 99 Dodd, A. W., & Co., Gloucester, Mass.—Cod-liver oil. P 47. 201
- 100 Warden & Oxnard, Pittsburg, Pa.—Refined petroleum. T 49. 201
- 101 Oleophine Oil Co., refinery & works, Greenpoint, L. I.; offices, 350 and 325 Broadway, New York, N. Y., and 84 Beaver street, New York, N. Y.—Refined petroleum illuminating oils. Refiners of petroleum; proprietors of the celebrated Oleophine illuminating oils, and manufacturers of the Company's superior patented cans. Oils delivered, in barrels and cans, for export and domestic use. T 44. 201
- 102 Munger, John W., Portland, Me.—Detergent compound. P 49. 201
- 103 Eavenson, J., & Sons, Philadelphia, Pa.—Soaps and candles. T 43. 201
- 104 Jewett, John, & Sons, New York, N. Y.—P 47. 201
- 4 Linseed oil. 201
- 5 White lead. 208
- 105 Rush & Co., Philadelphia, Pa.—Oils. T 41. 201
- 106 West, C., & Sons, Baltimore, Md.—Refined petroleum oil. T 41. 201
- 107 Miller, William P., & Co., New York, N. Y.—Bodeker's lubricants. T 49. 201
- 108 Galena Oil Works (limited), Franklin, Pa.—Lubricating oil. P 46. 201
- 109 Bassett, George A., Washington City, D. C.—Liquid laundry gloss. T 71. 201
- 110 Todd, A. M., Nottawa, Mich.—Natural oil of peppermint. P 47. 201

Oils, Paints, Pigments.

- 111 Cook, Caleb, Provincetown, Mass.—Watch and clock oil. T 50. 301
- 112 Dixon Crucible Co., Jersey City, N. J.—Graphite paint. P 72. 302
- 112a Williston, A. L., Northampton, Mass.—Indelible ink and marking pens. T 46. 302
- 113 Hover, J. E., & Co., Philadelphia, Pa.—Chemical writing fluid: black ink, carmine, violet, and copying inks; mucilage. T 47. 302
- 113a Prunier, Pierre, Philadelphia, Pa.—Indigo extract, indigo carmine, tannins, gallo-tannic acid, archil, greens, etc. P 47. 302
- 114 Wetherill & Bro., Philadelphia, Pa.—White and red lead, litharge, orange mineral. T 44. 302
- 115 Lucas, John, & Co., Philadelphia, Pa.—White lead, white zinc, colors, paints, varnishes, Swiss and imperial French greens, etc. T 44. 302
- 117 Biha & Co., Bridesburg, Philadelphia, Pa.—Lampblack. Established 1844. Manufacturers of all grades of lampblack for painters, curriers, printing ink, oil-cloth, rubber, and wall paper manufacturers. (Put up in handsome pasteboard boxes, neatly labeled.) T 40. 302
- 117a Reisinger Manufacturing Co., Harrisburg, Pa.—Chemical writing fluid. P 68. 302
- 119 Kokosing Oil Co., Gambier, O.—Lampblack. V 63. 302
- 120 Felton, Rau, & Sibley, Philadelphia, Pa.—Coach, furniture, and Japan varnishes. T 40. 302
- 120a Rue, Mrs. S., Philadelphia, Pa.—Furniture polish. W 53. 302
- 121 Reynolds, C. T., & Co., New York, N. Y. (Established 1770).—Paints, dry and in oil, fine colors, chemically pure; superfine quick-drying colors for coach and car painting; ready mixed paints for house and villa painting; laundry blueing, in bags, ready for use; artists' materials, embracing prepared canvas for oil painting, Tyrian water-color tablets, drawing papers and materials; crayons, gilders' tools, brushes for art, painters' and decorators' brushes, grainers' special tools, painters' cutlery, wax-flower materials, etc. The whole line of goods exhibited were taken from their regular stock, made for practical use, and not display. P 49. 302
- 121a Brandeis, L., & Co., New York, N. Y.—Bronze powders; gold, silver, and metal leaf. P 59. 302
- 122 Keystone Paint Co., Muncy, Pa.—Filler for coach, car, and safe painting; paint for school-house blackboards. T 40. 302
- 123 Carter, Dinsmore, & Co., Boston, Mass.—Writing fluid, inks, and mucilage; Lombard's inks and mucilage. T 47. 302
- 124 Fromherz, Jos., Cincinnati, O.—Inks. T 47. 302
- 125 Heller & Mers, New York, N. Y.—Ultramarine. T 41. 302
- 126 Rosenberg, D., & Sons, New York, N. Y.—Varnishes and baking japans. Manufacturers of coach, railway, cabinet, agricultural implements, and miscellaneous varnishes; baking japans for all uses; bronzing and colored varnishes, of all colors, a specialty. T 44. 302
- 127 Ware, M. J., Philadelphia, Pa.—Ostrich feathers, dyed and scoured. P 47. 302
- 128 Lockwood, Brooks, & Co., Boston, Mass.—Writing inks and mucilage. P 47. 302
- 129 Pecora Paint Company, Philadelphia, Pa.—Paints, stains, fillers, and dryers. T 41. 302
- 130 Davids, Thad., & Co., New York, N. Y.—Writing inks and fluid, mucilage, sealing wax, notarial seals, wafers, etc. T 47. 302
- 132 Raynald, John, 214 George street, Philadelphia, Pa.—Black and colored writing inks, copying inks, mucilage, hair dye, indelible ink. Inventor of the "Jet Black Writing Ink," invented 1860; instantaneously black, and remains so for ages. Raynald's instantaneous black Japan ink, for architecture. Raynald's instantaneous black copying ink, giving three or four copies distinct and perfect; Raynald's purple and greenish fluids at first, afterwards turning very black; Raynald's indelible ink for marking linen, silk, and cotton, with a clean pen or stencil, will not spread—no preparation; fifteen different albumen colors for coloring maps and photographs, all first class. T 47. 302
- 133 Iron Clad Paint Co., Cleveland, O.—Paints manufactured from iron ore, as used in iron smelting furnaces. T 41. 302
- 134 Phillips, C. C., & Co., Philadelphia, Pa.—Varnish and japans. T 41. 302
- 135 Brooklyn White Lead Co., New York, N. Y.—White lead, red lead, litharge. T 41. 302
- 136 Martin, L., & Co., Philadelphia, Pa.—Lampblack. T 41. 302
- 137 Barker, Moore, & Mein, Philadelphia, Pa.—White lead. T 40. 302
- 138 Parsons, John, New York, N. Y.—Glove powder, Dixon's silver powder, carmine and violet inks, pocket mucilage. T 47. 302
- 139 Waggoner, Gifford, & Co., Chicago, Ill.—Mixed paints. T 59. 302
- 140 Thompson, Albert, Bridgewater, Conn.—American sienna paint. T 40. 302
- 141 Sharpless, John M., & Co., Philadelphia, Pa.—Solid and liquid extract logwood. T 46. 302
- 142 Polychroite Veneer Co., Philadelphia, Pa.—Wood fibre composition, for decorating wood and other surfaces. P 57. 302
- 143 Mathers', Geo., Sons, New York, N. Y.—Type and lithographic printing inks. T 47. 302
- 144 Meyers, Simon S., Philadelphia, Pa.—Stove polish, liquid blueing, in ejecting bottles. T 47. 302
- 145 Valentine & Co., New York, N. Y.—Varnishes, etc., for fine coach and car work. T 43. 302
- 146 Milliken, Eugene, Boston, Mass.—Electrocon liquid polish. T 56. 302
- 147 Masury, J. W., & Son, New York, N. Y.—Grained doors, showing graining colors; superfine colors for coach, carriage, and car painting. T 41. 302

For location of objects, indicated by letter and figure, see Key to Notation, p. 95; ground plan, p. 96.

Pigments, Essences, Perfumery.

- 148 Moss, Geo. A., New York, N. Y.—Liquid blueing, powder blue, shoe blacking, ladies' shoe dressing, writing inks, etc. T 47. 302
- 149 Adams White Lead Co., Baltimore, Md.—White lead and products, a new process securing excellence of body, color, softness, uniformity, and durability. T 40. 302
- 150 Smith, Edward, & Co., New York, N. Y.—Coach and car varnishes, and japan dryers. T 41. 302
- 152 Moser, Chas., & Co., Cincinnati, O.—Colors, dry and pulp; paints in oil, coach colors, artists' colors. T 41. 302
- 153 Jarboe, J. W., New York, N. Y.—Ship's model and iron slab coated with enamel paint composition. T 54. 302
- 153 Wright, J. K., & Co., Philadelphia, Pa.—Printers' and lithographers' inks and varnishes. T 47. 302
- 154 Continental Manufacturing Co., Philadelphia, Pa.—Inks, writing fluids, meilage, artists' colors. T 47. 302
- 155 McCloskey, Bro., & Co., Philadelphia, Pa.—Paints and colors, ground in oil, dry, and in pulp. T 40. 302
- 155 Robinson & Pratt, Philadelphia, Pa.—Printing and lithographic inks and varnishes. T 51. 302
- 156 Erwin, H., & Co., Bethlehem, Pa.—Mineral paint from Lehigh valley. T 40. 302
- 157 Prince's Metallic Paint Co., Parryville, Pa.—Metallic paint and foundry facings. T 50. 302
- 158 Johnson, Chas. Eneu, & Co., Philadelphia, Pa.—Typographic and lithographic black and colored printing inks, varnishes, etc. T 47. 302
- 159 State of Oregon (by A. J. Dufur).—Paints and oils. V 56. 302
- 160 Maynard & Noyes, Boston, Mass.—Writing ink. T 47. 302
- 161 Estes, E. B., & Son, New York, N. Y.—Sign painters' smalts. T 45. 302
- 162 Rowland, Joseph S. C., Philadelphia, Pa.—Indelible, canceling, and copying ink, and writing fluid. T 47. 302
- 163 American Bronze Powder Manufactory, Brooklyn, N. Y.—Bronze powders. N 50. 302
- 164 Francis & Loutrel, New York, N. Y.—P 74. 302
 a Copyable printing inks. (Patent, April, 1878.) Use any "copying press. 302
 b Composition for inking rollers. Does not harden, shrink, or crack; good for all time and climate. 543
- 165 Foering, Geo. W., Locust Valley, Lehigh county, Pa.—"Saucou sienna." Geologically, and otherwise, a peculiar formation, rich in alumina and peroxide of iron, exhibiting the durability of the best ochres. T 50. 302
- 166 Peirce, I. Newton, Philadelphia, Pa.—Stone surface enamel colors, and samples. T 70. 302
- 167 Smith, Marshall L., Kimberton, Pa.—Siliceous mineral paint. T 70. 302
- 168 Marble, Jerome, & Co., Worcester, Mass.—Patent indigo blue dye. A pure indigo color produced in any shade, perfectly fast, saving in time and expense, stands all indigo tests; process learned in half a day. T 70. 302
- 169 Zinsser Wm., & Co., New York, N. Y.—Bleached and refined shellac, French alcohol copal varnishes, sealing wax. Shellacs are in quality same as unbleached; refined, give clear, transparent solutions; varnishes, quick drying, hard surface; lacquers of lasting colors. P 47. 302
- 170 Thomson, J. S., New York, N. Y.—Non-erasable and other inks. T 47. 302
- 171 Shaw, Thomas Ogg, Providence, R. I.—Paint made from mineral from Wyoming Territory. T 50. 302
- 172 Johnson, Henry M., New York, N. Y.—Kalsomine and fresco paints. P 47. 302
- 173 Stimson & Babcock, Boston, Mass.—P 47. 302
 a Coach and car varnishes. 302
 b Gum copals. 303
- 174 Tetlow, Henry, & Bro., Philadelphia, Pa.—Perfumery, bouquet and toilet soaps, fine toilet preparations, blanc illusion, etc. P 48. 303
- 175 Hotchkiss, H. G., Lyons, N. Y.—American official essential oils. P 47. 303
- 176 Upham, Sam'l C., Philadelphia, Pa.—Extract, cologne, Florida water. Perfume fragrant and lasting. Two medals awarded. P 47. 303
- 177 Wenck & Co., New York, N. Y.—Perfumes and toilet preparations. P 47. 303
- 178 Wenck & Briesen, New York, N. Y.—Automatic parlor fountain. P 47. 303
- 179 Chawshaw French Toilet Powder Co.—Toilet powder and perfumed soap. T 48. 303
- 180 Sulsberger, David, Philadelphia, Pa.—Fluid extracts, by cold process; cooking extracts, fruit and liquor flavors, fruit ethers. P 48. 303
- 181 Savournin, W. H., Philadelphia, Pa.—Lily whites, rouges, toilet powders, etc. P 47. 303
- 182 Malcom & Stevenson, Philadelphia, Pa.—Fruit flavoring extracts. P 47. 303
- 184 Woodworth, C. B., & Son, Rochester, N. Y.—Perfumery, hair oils, pomades, cosmetics, flavoring extracts. T 47. 303
- 185 Young, Ladd, & Coffin, New York, N. Y.—Perfumes, oil of cologne, California water. T 48. 303
- 186 Chesebrough Manufacturing Co., New York, N. Y.—Vaseline, pomades, cerates, ointments, perfumes, cold cream, etc. P 43. 303
- 187 Lorenz Bros., Toledo, O.—Concentrated perfumes. P 47. 303
- 188 Da Costa, D. R., Philadelphia, Pa.—Tooth wash. P 48. 303
- 189 Tallmadge & Co., New York, N. Y.—Essential oils and fluid extracts. P 48. 303
- 190 Frittsch, Schimmel, & Co., New York, N. Y.—Essential oils and artificial fruit essences. P 47. 303

Perfumery, Toilet Articles, Explosive Compounds, Pottery.

- 191 Bell, R. W., & Co., Buffalo, N. Y.—Staple and toilet soaps. T 48. 203
- 191a Hotchkiss, L. B., Phelps, N. Y.—Peppermint, spearmint, wintergreen, and pansy essential oils. P 47. 203
- 192 Taylor, C. R., & Co., Philadelphia, Pa.—Toilet soaps and perfumery. P 47. 203
- 193 Blair's, H. C., Sons, Philadelphia, Pa.—Toilet articles. T 47. 203
- 194 Colgate & Co., New York, N. Y.—Fancy soaps and perfumery. P 47. 203
- 195 Watson, Richard H., Philadelphia, Pa.—Handkerchief extracts. De Vies's quadruple handkerchief extracts. These celebrated extracts are produced with great skill, from the finest articles known in perfumery, and for delicacy of perfumes, truthfulness to nature, and tenacity, they are particularly recommended; they are guaranteed to be of quadruple strength, and warranted not to turn rancid. Although not old extracts, they have taken favor immediately, and the best proof of their quality is their large and constantly increasing sales. A trial will convince you. P 47. 203
- 196 Hoyt, E. W., & Co., Lowell, Mass.—Cologne. P 47. 203
- 197 Read, Wm. H., Baltimore, Md.—Cologne, tooth wash, perfumery. P 47. 203
- 198 Worsley, Thos., & Co., Philadelphia, Pa.—Toilet and fancy soaps, and toilet powders. P 47. 203
- 199 Wright, R. & G. A., Philadelphia, Pa.—Extracts, cologne, cosmetics, pomades, oils, dentifrices, toilet soaps, etc. P 47. 203
- 200 Wolf Brothers & Keech, Centreville, Mich.—Essential oils. P 47. 203
- 201 Aschenbach & Müller, Philadelphia, Pa.—Flavoring extracts and perfumery. P 47. 203
- 202 Fricke, Arthur, Philadelphia, Pa.—Perfumery. P 47. 203
- 203 Burnett, Jos., & Co., Boston, Mass.—Flavoring extracts, cologne water, and other toilet articles. P 48. 203
- 204 Colton, J. W., Westfield, Mass.—Colton's select flavoring extracts of choicest fruits and spices. They are strictly pure, rich flavors of the fruits, and are great saving in actual cost, to all. In a sale of thousands of gross, not one particle of coloring or adulteration has ever been used. P 43. 203
- 205 Hale & Parrish, Lyons, N. Y.—Essential oils. P 47. 203
- 206 Atwood, Hermon W., New York, N. Y.—Cologne. The proprietor takes pride in comparing this product of home manufacture with the best imported colognes. Delicacy of fragrance is combined with lasting and invigorating qualities. P 47. 203
- 207 Mitchell, Geo. E., Lowell, Mass.—Cologne. N 53. 203
- 207a California Distilling Co., New York, N. Y.—Essential oils and fruit extracts. P 48. 203
- 208 Hambleton, J., & Son, Philadelphia, Pa.—Bay rum, pomades, cosmetics, colognes, extracts, hair tonics, etc. P 43. 203
- 209 Weaver, James B., Philadelphia, Pa.—Cologne, Florida water, bay rum. T 49. 203
- 209a Oriental Powder Mills, Boston, Mass.—Imitation samples of military, sporting, and blasting powder. P 43. 204
- 210 Barber Match Co., Akron, O.—Drawing-room and sulphur matches. T 44. 204
- 211 Toy, Bickford, & Co., Simebury, Conn.—Safety fuses. T 45. 204
- 211a Du Pont de Nemours, E. I., Wilmington, Del.—Powder canisters and saltpetre. T 40. 204
- 212 Laffin & Rand Powder Co., New York, N. Y.—Gunpowder, empty packages, patent cartridges for mining, fuses, crude materials. N 62. 204
- 212a Zennig, R. H., & Co., New York, N. Y.—Wax matches and tapers. P 43. 204
- 213 Hazard Powder Co., Hazardville, Conn.—Sporting and blasting gunpowder. H 71. 204
- 214 Willis, Aug. L., Philadelphia, Pa.—Pyrotechnic fog signals. H 71. 205
- 214a Harris, H. G., New York, N. Y.—Balloon signals. H 68. 205
- Ceramics—Pottery, Porcelain, Glass, etc.**
- 215 Galloway & Graff, Philadelphia, Pa.—Terra-cotta statuary, vases, tazzas, pedestals, fountains, flower pots, garden edging, etc. B 72. 206
- 216 Neukumet, Philip, Philadelphia, Pa.—Fire bricks, clay retorts, gas-house tiles, and ornamental building brick. X 56. 206
- 216a Burns, Russell & Co., Baltimore, Md.—Pressed brick masonry. Y 60. 206
- 217 Moorhead Clay Works, Philadelphia, Pa.—Terra-cotta sewer and water pipes, drain and roofing tiles, garden vases, chimney tops, and flues. (Outside.) 206
- 218 Harvey & Adamson, Philadelphia, Pa.—Drain and sewer pipe, garden vases, statuary, chimney tops, flues, etc. B 72. 206
- 218a Davis & Chaddock, Boston, Mass.—Fire bricks. Y 61. 206
- 219 Remmey, Richard C., Philadelphia, Pa.—Chemical apparatus for manufacturing acids. B 68. 206
- 220 Gossin, F., Philadelphia, Pa.—Terra-cotta ware, statuary, vases, fountains, pedestals, etc. B 69. 206
- 221 Bowman, O. O., & Co., Trenton, N. J.—Terra-cotta drain and sewer pipe, chimney tops, and flues; garden vases and statuary. B 71. 206
- 221a Alexander, J. Park, Akron, O.—V 63. 206
- a Fire brick. 206
- b Stone ware. 210
- 222 Fritz, John, Philadelphia, Pa.—Terra-cotta work, hanging baskets, rustic flower pots, vases, fern cases, etc.; imitation gas logs. B 69. 206
- 222a Ogden, Isaac, Newark, N. J.—Drain pipe. Y 55. 206

Pottery, Porcelain.

- 223 Scioto Fire Brick Co., Sciotoville, Ohio.**—Fire bricks and fire clays. V 61 to 64. 206
- 223a Dover Fire Brick Co., Canal Dover, O.**—Fire brick. T 63. 206
- 223b Boynton, C. W., & Co., Woodbridge, N. J.**—Under-drainage tile, hollow building brick, and garden borders. Y 54. 206
- 224 Ambruster, John, Camden, N. J.**—Pressed brick work. X 58. 206
- 225 Union Mining Co., of Allegheny county, Md.**—Fire brick. X 58. 206
- 226 Wood Brothers, Hartford, Conn.**—Drain tiles. W 53. 206
- 227 Hinvest, Robt., New York, N. Y.**—Clamp and band for securing masonry, hollow brick for ventilation, chimney top. (Outside.) 206
- 227a Scattergood, W. W., Rancocas, N. J.**—Drain tile. X 56. 206
- 227b Brick Enameling Co., Philadelphia, Pa.**—Enameled bricks. U 48. 206
- 227c Richardson, Geo., Milwaukee, Wis.**—Artif. Stone and Pipe. T 51 & X 57. 206
- 228 Hews, A. H., & Co., North Cambridge, Mass.**—Flower pots, fancy earthenware, garden vases, ferneries, battery jars, etc. B 69. 206
- 229 Hall, A., & Son, Perth Amboy, N. J.**—Brick used in chimney of New Jersey State Building. 206
- 230 Maurer, Henry, Perth Amboy, N. J., and 418 to 422 East Twenty-third street, New York, N. Y.**—Roofing tiles used upon the New Jersey State Building. Cheap, light in weight, thoroughly fire-proof, perfectly water-tight. 206
- 231 American Kaolin Co. Works, New Garden, Chester Co., Pa.; office, 213 South Third street, Philadelphia, Pa.**—Fire brick, tile, etc. X 58. 206
- 232 Wassel Fire Clay Co., Columbus, O.**—V 63. 206
a Terra-cotta work. 206
b Fire brick. 207
- 233 Krescher, B., & Son, Philadelphia, Pa.**—X 56. 206
a Fire bricks, tiles, blocks, and slabs. 206
b Clay gas retorts, furnaces, and muffles. 207
- 233a Newton & Co., Albany, N. Y.**—X 56. 206
a Fire brick. 206
b Stove linings, heater fire-brick linings, portable clay furnaces. 207
- 233b Friese, C., Philadelphia, Pa.**—Stannary, vases, stumps, flower pots, hanging baskets, etc. T 76. 206
- 234 Hall, A., & Sons, Perth Amboy, N. J.**—T 59. 206
a Diamantine front and fire bricks. 206
b Street paving blocks. 208
c Rockingham antique and yellow ware. 210
- 235 Hicks, George C., & Co., Baltimore, Md.**—T 55. 206
a Terra-cotta pipe, vase, clays, etc. 206
b Fire bricks, gas retorts. 207
c Tiles. 208
Standard fire-clay gas retort, made from the renowned Maryland fire clays, and remarkable for refractivity, tenacity, and freedom from gathering carbon. Fire clays, all from within the city limits of Baltimore. 208
- 236 Walker, N. U., Wellsville, O.** (Outside.) 206
a Sewer pipe, terra-cotta ware, chimney top and statuary. 206
b Fire tiles, stove linings. 207
c Roofing tile. 208
- 237 State of New Jersey, by Geo. H. Cook, State Geologist, New Brunswick, N. J.**—T 70. 206
a Sewer and drain pipe; fine and common pottery. 206
b Fire bricks. 207
c Stoneware. 210
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e Apothecaries' and bottle glass. 215
- 237a Hampton, Cutter, & Son, Woodbridge, N. J.**—T 64. 207
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b White ware. 210
- 238 Dixon Crucible Co., Jersey City, N. J.**—Graphite crucibles, retorts, etc. P 72. 207
- 238a Haws, A. J., Johnstown, Pa.**—Fire brick bottoms for blast furnaces, rolling mills, etc. Y 60. 207
- 239 McIlvaine Bros., Philadelphia, Pa.**—Foundry facings. P 43. 207
- 239a Kier Bros, Pittsburg, Pa.**—Y 56. 207
a Fire bricks. 207
b Tiles. 208
- 240 Goebel, J., & Co., New York, N. Y.**—Clay and clay pots. T 57. 207
- 240a Burlington Manufacturing Co., Burlington, Vt.**—Samples of tile floor. T 56. 208
- 240b Peck, Kennedy, & Co., New York, N. Y.**—Clay roofing tile. (Outside.) 208
- 240c Field, F. K., Philadelphia, Pa.**—Flagging and floor tiles. T 53. 208
- 241 Young's, Wm., Sons, Trenton, N. J.**—Crockery and porcelain hardware trimmings. T 74. 209
- 242 Empire China Works, James L. Jensen, Proprietor, Green Point, Brooklyn, E. D., N. Y.**—Porcelain hardware and cabinet trimmings; also, patent lemon squeezers, wood frame, porcelain lined; porcelain blade knife sharpeners, etc. N 70. 209
- 243 Moore, Joseph H., Trenton, N. J.**—Earthenware. T 76. 210
- 244 Carr, James, New York, N. Y.**—White granite, majolica and parian ware. T 77. 210
- 244a Laughlin Bros., East Liverpool, O.**—Ironstone china ware. T 75. 210
- 245 Davis, Isaac, Trenton, N. J.**—White granite and decorated crockery ware. T 75. 210
- 246 Jeffords, J. E., & Co., Philadelphia, Pa.**—Yellow, Rockingham, white-lined, buff-stone, majolica, and lava wares. T 77. 210
- 246a Coxon & Co., Trenton, N. J.**—Earthenware. T 77. 210
- 247 Astbury & Maddock, Trenton, N. J.**—Earthenware for sanitary purposes; china and earthenware for general use. T 73. 210
- 248 Ott & Brewer, Trenton, N. J.**—White granite, porcelain, and parian wares; vases, figures, table and toilet goods. T 73. 210

Pottery, Porcelain, Glassware.

- 249** Thompson, C. C., & Co., East Liverpool, O.—Pottery ware. T 76. 210
- 250** Yates, Bennett, & Allen, Trenton, N. J.—Dinner, dessert, tea, and toilet sets; crockery ware. T 77. 210
- 252** Brunt, Bloor, Martin, & Co., East Liverpool, O.—American white granite dinner, dessert, tea, and toilet decorated ware. T 74. 210
- 252a** Speeler Pottery Co., Trenton, N. J.—T 75.
- a Yellow and Rockingham fire-proof ware. 210
- b Biscuit ware. 212
- 253** Baggott, S. & W., East Liverpool, O.—Rockingham and yellow ware. T 75. 210
- 253a** Glasgow Pottery Co., Trenton, N. J.—T 73.
- a Stone china and decorated ware. 210
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- 254** American Crockery Co., Trenton, N. J.—Chamber sets and table ware of bisque, white granite, and stone china. T 73. 213
- 255** Greenwood Pottery Co., Trenton, N. J.—Ironstone china, decorated dinner and toilet sets. T 74. 213
- 256** Mercer Pottery Co., Trenton, N. J.—Plain and decorative earthenware and china. T 75. 213
- 256a** Union Porcelain Works, Greenpoint, N. Y.—Porcelain ware. T 75. 213
- 257** Onondaga Pottery Co., Geddes, N. Y.—White granite, and decorated table and toilet ware. T 77. 213
- 258** Hambleton, J., & Son, Philadelphia, Pa.—Decorated porcelain plates, pitchers, barber mugs. P 43. 213
- 258a** Bullock, Charles, Trenton, N. J.—China ware. T 77. 213
- 259** Lucas, John, & Co., Philadelphia, Pa.—Window glass. T 45. 214
- 260** Sallandrouse, S. P., Cincinnati, O.—Plate glass. P 43. 214
- 261** Cohansey Glass Manufacturing Co., Bridgeport, N. J.—N 49.
- a () Under window glass. 214
- b Do. des, vials, and demijohns. 215
- 262** Gilbert, F. A., New Haven, Conn.—Combination table. P 51. 217
- 262a** Lambie & Sargent, New York, N. Y.—Adjustable table. P 51. 217
- 263** Klautscheck, Thomas, & Stewart, Philadelphia, Pa. (*Pavilion in park.*)
- a Window glass. 214
- b Glass shades. 216
- 264** Diamond Glass Co., Ravenna, O.—Double-thick glass from ground white sandstone, in windows of Ohio State Building. 214
- 265** Wenck & Co., New York, N. Y.—Atomizers. P 47. 215
- 265a** Whittall, Tatum, & Co., Philadelphia, Pa.—Druggists', perfumers', confectioners', etc., glassware; fruit jars. N 49. 215
- 266** Holzer, Wm., Philadelphia, Pa.—Druggists', chemists', philosophical, and fancy glassware. N 52. 215
- 267** Young, Ladd, & Coffin, New York, N. Y.—Perfume atomizers. T 48. 215
- 268** Pile, W. H., & Sons, Philadelphia, Pa.—Hydrometers, specific gravity bottles, graduated tubes, chemical thermometers, and analytical weights. N 50. 215
- 269** Caterson, Wm. M., Philadelphia, Pa.—Bottles for poisons. T 53. 215
- 270** Fox, H. C., & Sons, Philadelphia, Pa.—Druggists' and perfumers' glassware made from glass not containing lead. N 53. 215
- 271** Warner, Wm. R., & Co., Philadelphia, Pa.—Drug dispensing bottles. P 43. 215
- 272** Whitney Bros., Glassboro', N. J.—Green and other colored glassware, for druggists, chemists, etc. N 54. 216
- 272a** Smith Bros., New Bedford, Mass.—Engraving and decorating of glass. N 51. 216
- 273** Boston & Sandwich Glass Co., Boston, Mass.—Glassware. Manufacturers of cut crystal chandeliers; rich cut glassware of every description, including the "Daniel Webster Punch Bowl." N 51. 216
- 273a** Smith, H. J., & Co., Philadelphia, Pa.—Stained glass window of the "Crucifixion," the main figure after A. Durer's celebrated picture. (*North Gallery.*) 216
- 274** New England Glass Co., East Cambridge, Mass.—Glassware. N 50. 216
- 274a** Smith Bros., New Bedford, Mass.—Decorated vases, shades, globes, etc. N 51. 216
- 274b** Jones, Thomas, New York, N. Y.—Ornamental cut and ground glass. N 49. 216
- 274c** Hobbs, J. H., Brockunier, & Co., —Wheeling, W. Va.—Soda-lime glassware. N 52. 216
- 275** Döbelmann, J. B., Greenpoint, N. Y.—Cut and engraved glassware. N 53. 216
- 276** Hartell & Letchworth, Philadelphia, Pa.—Gas globes, ornamental sheet glass, and Centennial devices. P 64. 216
- 277** Mount Washington Glass Works, New Bedford, Mass.
- a Cut crystal floral fountain. T 45. 216
- b Crystal toilet table, prismatic candelabra, chandeliers, vases, glassware. N 51. 216
- 278** La Belle Glass Co., Bridgeport, Ohio.—Table, bar, and lamp goods, cut and engraved ware. N 52. 216
- 279** Keystone Flint Glass Co., Pittsburgh, Pa.—Pure lead glass, lamp chimneys, silvered glassware. N 51. 216
- 280** Bakewell, Pears, & Co., Pittsburgh, Pa.—Pressed and blown crystal and opal glassware. N 51. 216
- 281** Ripley & Co., Pittsburgh, Pa.—Imitation cut glassware, lamps blown and cut; bar goods cut and engraved. N 49 to 51. 216
- 283** Richards & Hartley Flint Glass Co., Pittsburgh, Pa.—Crystal glass table ware, lamps, etc. N 49 to 51. 216
- 284** Adams & Co., Pittsburgh, Pa.—Flint and opal glassware. N 49 to 51. 216
- 285** Atterbury & Co., Pittsburgh, Pa.—Lamps and glassware, gas and kerosene globes. N 49 to 51. 216

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26

Glassware, Furniture.

- 288 Excelsior Flint Glass Co., Pittsburgh, Pa.—Glass lamp chimneys, silvered glass reflectors. N 49 to 51. 216
- 287 Rochester Tumbler Co., Pittsburgh, Pa.—Glass tumblers. N 49 to 51. 216
- 288 Crystal Glass Co., Pittsburgh, Pa.—Moulded or pressed crystal glass table ware, etc. N 49 to 51. 216
- 289 Central Glass Co., Wheeling, W. Va.—Pressed glassware. N 52. 216
- 290 Albertson, J. M., Norristown, Pa.—Window glass, glass shades; colored, obscured, and corrugated glass. N 51. 216

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- 296a New Haven Folding Chair Co., New Haven, Conn.—Portable folding chairs. T 59. 217
- 297 McKinley, John, Philadelphia, Pa.—Patent barbers' chairs. T 58. 217
- 297a Pabst, Charles, Philadelphia, Pa.—Sofa bed. P 52. 217
- 298 Allen & Bro., Philadelphia, Pa.—Furniture and interior decorations. P 54. 217
- 298a Reeves, S. H., & Co., New York, N. Y.—Spring bottom bed. P 52. 217
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- 322 Lambie & Sargent, New York, N. Y.—Adjustable table. P 51. 217
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- 327 Kimbel & Cabus, New York, N. Y.—Parlor furniture and decorations. P 56. 217
- 328 Vaill, E. W., Worcester, Mass.—Patent folding chairs, in great variety. Business established 1861. I claim for my chairs durability, thoroughness of finish, simplicity in folding, and compactness when folded. Very extensive assortment of styles, adapted for parlor, drawing-room, library, veranda, and shipboard; also, a line suitable for tropical climates. On account of limited space allotted, am compelled to make a comparatively meagre exhibit. T 57. 217
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- 334 Stiles, Mrs. E. W., Philadelphia, Pa.—Combination desk. P 50. 217
- 335 Karcher's, Daniel M., Sons, Philadelphia, Pa.—Sideboard. P 60. 217
- 336 Vandell, Chas. R., & Co., New York, N. Y.—Leather window lambrequins, embossed wall leather hangings, leather chairs and tables. P 52. 217
- 337 Schrenkeisen, M. & H., New York, N. Y.—Upholstered rocking chair on castors. P 53. 217
- 338 Killian Brothers, New York, N. Y.—Easels, parlor table, music stand, table, card receiver. P 51. 217
- 339 Schastey, Geo. A., New York, N. Y.—Furniture and interior decorations. P 58. 217
- 340 Brown & Bliss, 169 Canal street, New York, N. Y.—Dining-room furniture, extension tables, sideboards, etc. Special manufacturers and exporters of dining-room furniture "*en suite*," including extension tables of every description, with patent slides and patent screw-leg corner block, also sideboards and side tables with leaves of extension table enclosed within. T 50. 217
- 341 Palmer, Theo. J., New York, N. Y.—Rocking or reclining chair on castors. P 53. 217
- 342 Kittle, S. P., No. 203 Canal street, New York, N. Y.—Spring mattresses for under-mattress, or with mattress and bolster combined, and made to fold compactly for transportation, when desired; also, spring mattresses with straight frame and elastic edges; others so constructed that both sides and all the edges are alike elastic and most comfortable. A moderate outlay in these goods will insure a most exquisite bed. P 52. 217
- 343 Sehenck, Jas. V., New York, N. Y.—Crescent spring mattress. P 51. 217
- 344 Paton, Robt., & Son, New York, N. Y.—Church and school furniture, Sunday-school and lecture-room settees. P 54. 217
- 345 Postawka, L., & Co., Cambridgeport, Mass.—The "X" piano taboret. P 60. 217
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- 352 United States Spring Bed Co., Springfield, Mass.—Spring beds. P 52. 217
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- 354 Griendling, John, 213 N. Second street, Philadelphia, Pa.—Barber's chair, foot-rest, and hair-dressing standard. This chair is easily regulated for shaving and hair-cutting combined. An examination will satisfy any one of its merits. P 51. 217
- 354a Maires & Reed, New York, N. Y.—Adjustable iron chairs. P 50. 217
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- 358 Wootton Desk Co., Indianapolis, Ind.—Cabinet office secretary, rotary office desk. P 52. 217
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- 366 Vollmer, G., Philadelphia, Pa.—Furniture. T 54. 217
- 367 Thole, B., St. Louis, Mo.—Book case. P 59. 217
- 368 Swasey, I. N., M.D., Yonkers, N. Y.—Billiard tables; Trichorum table, a new principle in carpentry, securing a permanently level surface, and new built up work samples from the French Manufacturing Co. of New York City. T 51. 217
- 369 Hover, H. F., Philadelphia, Pa.—Folding wardrobe and lounge. P 50. 217
- 370 Most, John H., Old Saybrook, Conn.—Furniture made from wood of the "Charter Oak," Hartford, Conn. F 62. 217
- 371 Snyder, C. Ridgway, Minneapolis, Minn.—Work table, combining lap board and writing desk. P 50. 217
- 372 Caulier, F., Philadelphia, Pa.—Wardrobe bedstead. P 54. 217
- 373 Pottler & Stymus Manufacturing Co., New York, N. Y.—Bedstead, cabinet, bahut, table, door, door trimming, window cornice, curtains, sofa, chairs. P 55. 217
- 374 Schafft, Fridolin, Detroit, Mich.—Sideboard. P 60. 217
- 375 Ransom, D. L., & Co., Buffalo, N. Y.—Adjustable desks and business cabinets, can be adjusted to any position, at any moment, without disarranging any books, papers, etc. Five different styles, for private and general offices. Send for circular. T 50. 217
- 376 Wagan, R. M., Mount Lebanon, N. Y.—The Shakers' web-seated chairs, also with web backs, or with plush cushions, and foot-benches to match. The only manufacturer of the "Genuine Shakers' Chairs." P 52. 217
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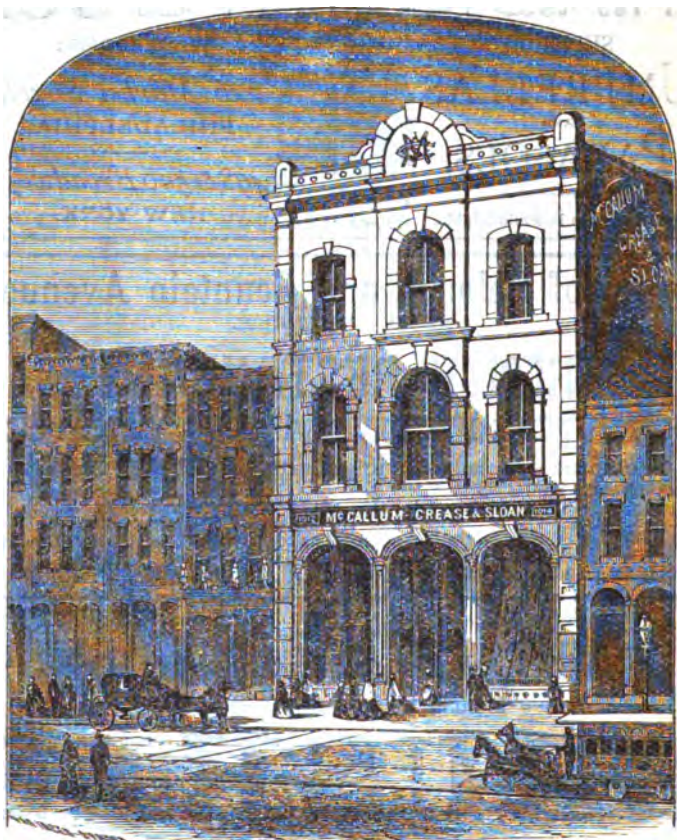
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- 469 Colwell, F. E., & Co., Chicago, Ill.—Mouldings and picture frames, shade fixtures. P 51. 220
- 470 Louderback, Edwin, Philadelphia, Pa.—Rustic window shades of wood. T 49. 220
- 471 Dickinson, Alfred S., New York, N. Y.—Spring roller and drop window shades, safety brackets, and pulley blocks. T 53. 220
- 472 Lloyd Bros., Philadelphia, Pa.—Ventilating shade fixtures. T 50. 220

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Furniture, Heating and Lighting Apparatus.

- 473 American Shade Roller Co., Boston, Mass.—Shade rollers, window shades, and fixtures. T 51. 220
- 474 Hewett, William, Philadelphia, Pa.—Self-operating swing carriage for parks and lawns. (*Outside.*) 221
- 474a Fisher, H., St. Louis, Mo.—Automatic swing. (*Missouri Building.*) 221
- 475 Beaudet, Homer J., Greenpoint, Long Island, N. Y.—Swing-convertible cradle. P 50. 221
- 476 Batley, John, Philadelphia, Pa.—Child's cradle or crib. P 51. 221
- 477 Rusk, Thos. J., Philadelphia, Pa.—Swing. (*In Park.*) 221
- 478 Providence Gas Burner Co., Providence, R. I.—P 47.
- a "Novelty" gas cooking stoves; ovens and heaters, burning without smoke or smell. 222
- b Gas burners, drop-light sockets, shade and globe holders, etc., manufactured from wrought brass. 223
- 478a Eldridge, G. Morgan, Philadelphia, Pa.—Automatic stove-damper. (*On stove pipe in Louisiana State Building.*) 222
- 479 Thackara, Buck, & Co., Philadelphia, Pa.—Gas fixtures, chandeliers, brackets, hall lights, reading lights, etc. N 60. 223
- 479a Miller & Eastmead, New York, N. Y.—Ship and railroad lanterns. P 47. 223
- 480 Cornelius & Sons, Philadelphia, Pa.—Gas fixtures, bronzes, etc. N 47. 223
- 480a New York Lamp Co., New York, N. Y.—Railroad and steamship lamps. P 47. 223
- 481 Bartlett, Jos. W., New York, N. Y.—Crystal and reflecting street lamps. N 50 and P 49. 223
- 481a Pennsylvania Globe Gaslight Co., Philadelphia, Pa.—Lanterns and apparatus for lighting streets. P 43. 223
- 482 Archer & Pancoast Manufacturing Co., New York, N. Y.—Gasoliers, centre slide chandeliers, ornamental bronzes, ecclesiastical metal work. N 47. 223
- 482a Kelly, S. S., Philadelphia, Pa.—Gas brackets, pendants, brass fittings, etc. T 45. 223
- 483 American Reflector Co., Philadelphia, Pa.—Gas and daylight reflectors, lanterns and shades. P 47. 223
- 483a Rollins, Geo. D., Philadelphia, Pa.—Automatic self-regulating gas burner. T 50. 223
- 484 Tucker, Hiram, & Co., Boston, Mass.—Iron gas chandeliers, brackets and statuettes. N 47. 223
- 484a Heywood, C. L., & Bruce, J. M., Boston, Mass.—Elevating street lamp; Bruce's vesper street lamp for towns, villages, and private grounds; patented by J. M. Bruce, December 22, 1874. Office, 4 Haymarket square. X 59. 223
- 485 Wilhelm & Newmann, Philadelphia, Pa.—Cast iron posts and brackets, street lanterns, mica reflectors, and car trimmings. N 48. 223
- 485a Henrichs, C. F. A., New York, N. Y.—Lamp with non-combustible wick and regulated burner; study lamps. N 47. 223
- 486 Quarré, V., Co., General Lithographers, 832 and 834 Arch street, Philadelphia, Pa.—Gas and lamp shades, and transparent window pictures. N 48. 223
- 486a Beidler, Geo. A., Philadelphia, Pa.—Lamp burners for use without chimneys. P 48. 223
- 487 Baker, Arnold, & Co., Philadelphia, Pa.—Gas fixtures. N 48. 223
- 488 Miner, Jacob G., New York, N. Y.—Street lamps for gas or oil. P 47. 223
- 489 Wilhelm, August, Philadelphia, Pa.—Ceiling reflectors. P 47. 223
- 490 Bradley & Hubbard Manufacturing Co., West Meriden, Conn.—Kerosene and gas chandeliers, brackets and fixtures, lamps. N 47. 223
- 491 Kramer, J. H., New York, N. Y.—Ornamental lanterns. P 47. 223
- 492 Walton Bros., New York, N. Y.—Railroad and steamship brass lanterns and supplies. P 47. 223
- 493 Dyott, M. B., Philadelphia, Pa.—Street lamps, brackets, posts, pendants, and lamp goods. P 48. 223
- 494 Miller, Edward, & Co., Meriden, Conn.—N 48.
- a Bronze lamps and ornaments, lamp trimmings. 223
- b Bronzes. 443
- 495 Hitchcock Lamp Co., Watertown, N. Y.—Lamps for animal, fish, or vegetable oils exclusively; no chimneys; burn twelve hours; fifteen car-candle power; odorless; smokeless; portable; for cars, shipping, factories, residences, etc. P 47. 223
- 496 Dreer, Smith, & Dreer, Philadelphia, Pa.—Berford gas-sunlight apparatus. P 47. 223
- 496a American Gas Screen Manufacturing Co., Haverhill, Mass.—Gas screens. (*West Gallery.*) 223
- 497 Atterbury & Co., Pittsburgh, Pa.—Lamps. N 49 to 51. 223
- 498 Parkhurst, V. P., East Templeton, Mass.—Candle stand with flame regulator. P 47. 223
- 499 Williams, Page, & Co., Boston, Mass.—Railway and steamship lamps. P 47. 223
- 501 Mitchell, Vance, & Co., New York, N. Y.—Gas fixtures. N 49. 223
- 502 Ives Patent Lamp Co., New York, N. Y.—Kerosene lamps, brackets, chandeliers, and pendants, burners and attachments. P 47. 223
- 503 Stockwell Self-lighting Gas Burner Co., New York, N. Y.—Self-lighting gas burner. P 50. 223
- 504 Wiler, Wm., Philadelphia, Pa.—Taper holders, gas torches and keys, etc. N 71. 223

For location of objects, indicated by letter and figure, see Key to Notation, p. 25: ground plan, p. 26

Furniture, Construction of Buildings, Woven Goods.

- 605 Cleveland Non-explosive Lamp Co., Cleveland, O., and 42 Barclay street, New York.—Perkins & House's patent metallic kerosene or coal oil safety lamps and filling cans. Thousands of families now using this lamp testify to its superiority; because, 1st, it is perfectly safe from explosion, owing to its scientific structure; 2d, it will not break, being made of metal; 3d, it is rendered perfectly clean by its patent drip-cup; 4th, it uses a very small amount of oil, in proportion to the light it gives, without odor; 5th, it gives a brilliant light, in consequence of its peculiar construction. Our filling can is perfectly safe from explosion, owing to its scientific structure—a flame cannot be communicated to the oil in it, either by accident or design. N 64. 223
- 606 American Calcium Light Co., Philadelphia, Pa.—Calcium light apparatus. T 43. 223
- 607 The Mains Manufacturing Co., New York, N. Y.—Lamps. N 65. 223
- 608 Doty, H. H., Washington, D. C.—Concentric mineral oil burner. N 50. 223
- 609 Lovell F. H., & Co., New York, N. Y.—Kerosene burners, chimneys, wicks, lamps, etc. P 50. 223
- 610 United States Soapstone Manufacturing Co., Cincinnati, Ohio.—P 77. 223
a Lava gas tips. 223
b Soapstone griddles. 224
- 612 Cohansey Glass Manufacturing Co., Bridgeton, N. J.—Fruit jars. N 49. 224
- 613 Lowentrant, P., Newark, N. J.—House furnishing goods. N 70. 224
- 614 Jones, J. Alonzo, New York, N. Y.—Water cooler and refrigerator. N 43. 224
- 616 Lowerre & Tucker, Newark, N. J.—Fluting machines. N 71. 225
- 617 Lloyd, Supplee, & Walton, Philadelphia, Pa.—Fluting machines. P 70. 225
- 617a Blackie & Charles, St. Louis, Mo.—Anti-freezing hydrant. (*Missouri State Building.*) 226
- 617b Wheeler, Wm. F., Boston, Mass.—Disinfecting devices. (*In use in Maine Building.*) 226
- 618 Boughton, Jno. W., Philadelphia, Pa.—Wood carpet, parquet floors, and wainscots; adjustable window screens, and bars. T 56. 227
- 619 National Wood Manufacturing Co., 950 Broadway, New York, N. Y.—Wood carpeting, parquet and inlaid floors, ornamental hard-wood ceilings, fancy wainscoting, and stair coverings. Send 3 cent stamp for book of design. P 52. 227
- 619a Canopy Frame Co., Williamantic, Conn.—Portable folding canopy frames. P 56. 227
- 620 Johns, H. W., New York, N. Y.—Asbestos roofing, sheathing, and lining felts. P 47. 227
- 621 Ehret, M., jr., Office, 404 Walnut street, Philadelphia, Pa.—Pavilion situated south of Main Building, to exhibit patent fire and waterproof granulated slag (composition) roofing. State and county rights for sale. (*Outside.*) 227
- 621a Miller, J. Wesley, Philadelphia, Pa.—Plumbing of eight rooms in Main Building. 227
- 522 Marion Blind Co., Brady, Pa.—Improved window blinds. T 53. 227
- 522a Reisinger Manufacturing Co., Harrisburg, Pa.—Sash locks, line holders, clothes hooks, cellar hoists, broom and wisp holders. P 68. 227
- 523 Walker, M., & Sons, Philadelphia, Pa.—Heavy wrought iron gates at north, south, east, and west entrances of Main Exhibition Building. 227
- 523a Peck, Kennedy & Co., New York, N. Y. (*Outside.*)
a Flat floor, arch, and fire proof building material. 227
b Brick and tile machine. 517
c Radiator. 555
- 524 Fisher & Bird, New York, N. Y.—Marble mantels, tablet, marble wainscoting. The white marble mantel is of pure American statuary; the black one is of the finest quality of velvet black, both designed and executed in the highest style of art, at our works, by American artisans. T 50. 227
- 525 Geddes, J. W., Baltimore, Md.—Skylight over south aisle. 227
- 526 Evans, C. B., Mantel & Grate Co., Cincinnati, O.—Iron mantels. T 63. 227
- 527 Garry Iron Roofing Co., Cleveland, O.—Sections of corrugated iron roof. (*Ohio State Building.*) 227
- 528 American Sheet & Boiler-Plate Cleveland, O.—Corrugated roofing iron and iron roofing tile. (*Ohio State Building.*) 227
- 529 House & Davidson, Cleveland, O.—Pair front doors. (*Ohio State Building.*) 227
- 530 Dobbins, R. J., Philadelphia, Pa.—Construction of Main Exhibition Building. 227
- 531 Quigley, Philip, Wilmington, Del.—Construction of Machinery Hall. 227
- Yarns and Woven Goods of Vegetable or Mineral Materials.**
- 532 De Witt Wire Cloth Co., New York, N. Y.—Wire cord, rope, cloth, and work; dandy roll, cotton and wire fabrics. B 76. 228
- 533 Clinton Wire Cloth Co., Clinton, Mass.—Iron railing, wire cloth, netting, fencing, fire proof lath. T 68. 228
- 535 Woven Wire Mattress Co., Hartford, Conn.—Woven wire cloth used for a spring bed. P 53. 228
- 536 Wild, Jos., & Co., New York, N. Y.—Matted and mats of fibre of coconut husks. N 77. 229
- 537 Wakefield Rattan Co., Boston, Mass.—Mats and matting. T 57. 229
- 538 Irving Bros., Elwood, N. Y.—Japanese paper carpeting, waterproof building paper. N 75. 229
- 539 Garsed Bros., Frankford, Pa.—Awnings and tickings. N 73. 230
- 540 Farnum, John, & Co., Philadelphia, Pa.—Tickings from Conestoga steam mills, Lancaster, Pa. N 75. 230
- 540a Slater, Wm. S., Providence, R. I.—Bleached cotton goods. N 73. 230
- 541 Bailey, John T., & Co., Philadelphia, Pa.—Bags. B 68. 230

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Woven Goods.

- 541a** Westport Manufacturing Co., Fall River, Mass.—Carpet warp and cotton batts. D 78. 230
- 542** Thornton, Samuel, & Sons, Philadelphia, Pa.—Cotton fabrics. N 76. 230
- 542a** Alabama & Georgia Manufacturing Co., West Point, Ga.—Sheeting. N 78. 230
- 543** Berkeley Co., Providence, R. I.—Nainsooks, Victoria lawns, and cambrics. These fabrics are noted for their quality and finish, and are manufactured from either Sea Island, Egyptian, or Peeler cotton. N 75. 230
- 543a** Slater Cotton Co., Providence, R. I.—Brown and bleached cotton goods. D 78. 230
- 544** Clark Thread Co., Newark, N. J.—Spool cotton. N 76. 230
- 544a** Sykes, Henry, Chicago, Ill.—Awnings and awning frames. Y 63. 230
- 545** Johnson, Emory, Neptune Twine Mills, Moodus, Conn.—Cotton seine twines, wetting cords, carpet warp, and knitting cotton, manufactured from superior stock and always of a uniform quality. Established in 1832. B 68. 230
- 546** Whitfield, F. E., Sen., Corinth, Miss.—Cotton yarns. N 75. 230
- 547** Semple, Samuel, & Sons, Mt. Holly, N. J.—Spool cotton. Manufacturers of Stuart's "Best six cord" and "Soft Enamelled" spool cotton. Stuart & Bro., sole agents, 13 Bank street, Philadelphia. N 74. 230
- 547a** Lawrence, Waterbury, & Co., New York, N. Y.—Bagging. D 78. 230
- 548** Walcott & Campbell, New York Mills, Oneida county, N. Y.—Shirtings, wide sheetings, cottonades, and knitting yarns. N 75. 230
- 548a** Lewiston Mills, Lewiston, Me.—Tickings, cottonades, chevrot shirtings, duckings, seamless cotton bags. R 78. 230
- 549** Westbrook Manufacturing Co., Portland, Me.—Ship's cotton duck. B 70. 230
- 549a** Lawrence Manufacturing Co., Lowell, Mass.—Bleached and unbleached cotton goods. N 73. 230
- 550** Powhatan Mills, Providence, R. I.—"Pocahontas" and "Wealth of the Country" bleached and brown muslins, well adapted for family and shirt maker's use. N 74. 230
- 550a** Merrick Thread Co., Holyoke, Mass.—Ready-wound bobbins for sewing machine shuttles. H 74. 230
- 551** Saratoga Victory Manufacturing Co., Boston, Mass.—Silesias, cambrics, and fancy cottons. F 73 and 74. 230
- 551a** Cutler Manufacturing Co., Warren, R. I.—Hosiery, cops, yarns, carpet warp, knitting cotton. D 78. 230
- 552** Chicopee Manufacturing Company, Chicopee Falls, Mass.—Cotton flannels, bleached and brown. F 73 and 74. 230
- 552a** Foustdale Manufacturing Co., Providence, R. I.—Bleached cotton goods. N 73. 230
- 553** Great Falls Manufacturing Company, Rockingham, N. C.—Rockingham sheeting. N 75. 230
- 554** Peckham Manufacturing Company, Providence, R. I.—Kentucky jeans. B 76. 230
- 555** Androscoggin Mills, Lewiston, Me.—Sheeting, shirting, jeans, bags, etc. R 78. 230
- 556** Hill Manufacturing Company, Lewiston, Me.—Bleached and unbleached sheetings and shirtings. R 78. 230
- 557** Continental Mills, Lewiston, Me.—Sheetings and shirtings. R 78. 230
- 558** Barker Mills, Auburn, Me.—Bleached and unbleached sheetings. R 78. 230
- 559** Smith, James Y., Manufacturing Co., Providence, R. I.—Bleached and brown cotton goods. N 74. 230
- 560** Evansville Cotton Manufacturing Co., Evansville, Md.—Brown sheetings and drills, assorted yarns. N 74. 230
- 561** King Philip Mills, Fall River, Mass.—Brown and bleached sheetings, cambric muslins, and rolled jacquets. Selling agents, Whorton, Atkinson & Co., Philadelphia; Converse, Staunton & Co., Boston and New York; Turnbull, Sweet & Co., Baltimore. N 76. 230
- 562** Hope Company, Providence, R. I.—Shirting. N 74. 230
- 563** Lonsdale Company, Providence, R. I.—Sheetings, cambric muslin, silesias, jacquets, Victoria lawns, sateens. N 74. 230
- 564** Blackstone Manufacturing Company, Providence, R. I.—Print cloths shirtings, umbrella cloths. N 74. 230
- 565** Gambrill, Sons & Co., Baltimore, Md.—Cotton duck for sails, tents, and awnings. D 78. 230
- 566** Wamsutta Mills, New Bedford, Mass.—Shirting and sheeting. N 74. 230
- 567** Shaw, James G., New Castle, Del.—Single-carded cotton warps. N 74. 230
- 568** Riddle, Jas., Son & Co., Wilmington, Del.—Brandywine Mills tickings. N 74. 230
- 569** Wauregan Mills, Wauregan, Conn.—Cotton goods. N 74. 230
- 570** Ponemah Mills, Taftville, Conn.—Plain and fancy cotton goods. N 74. 230
- 571** Gabriel, Henry, & Sons, Allentown, Pa.—Counterpanes, bed coverlets, quilts, and bed spreads. F 68. 230
- 572** Stafford & Co., Providence, R. I.—Cotton yarns, hosiery cops, twilled goods. N 76. 230
- 573** Minot, Hooper, & Co., Boston, Mass.—Bleached cotton goods. F 69. 230
- 575** Farwell Mills, Lisbon, Me.—Bleached and brown cottons. R 78. 230
- 576** Morse, Kaley, & Co., Milford, N. H.—Knitting cotton. E 78. 230
- 577** Putnam Manufacturing Co., Providence, R. I.—Colored cotton goods. N 73. 230
- 577a** White, R. T., & Son, Philadelphia, Pa.—Rag carpet warps and cotton batts. D 78. 230
- 578** Clinton Manufacturing Co., Providence, R. I.—Bleached cotton goods. N 73. 230

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

Woven Goods.

- 579 Bridge Mill Cotton Manufacturing Co., Providence, R. I.**—Bleached cotton goods. N 73. 230
- 580 Manville Co., Providence, R. I.**—Cotton goods, bleached and colored. N 73. 230
- 581 Ross, John L., Providence, R. I.**—Bleached, unbleached, and colored cotton goods. N 73. 230
- 582 Social Manufacturing Co., Providence, R. I.**—Brown, bleached, and colored cotton goods. N 73. 230
- 583 Warren Manufacturing Co., Warren, R. I.**—Bleached and colored cotton goods. N 73. 230
- 584 Peabody Mills, Providence, R. I.**—Colored cotton goods. N 73. 230
- 585 Dyerville Manufacturing Co., Providence, R. I.**—Brown and bleached cotton goods. N 73. 230
- 586 Ballou, Geo. C., & Son, Providence, R. I.**—Brown, bleached, and colored cotton cloth. N 73. 230
- 587 Silver Spring Bleaching & Dyeing Co., Providence, R. I.**—Bleaching, dyeing, and finishing the various grades and styles of cotton cloth. N 73. 230
- 588 Hooper, Wm. E., & Sons, Baltimore, Md.**—Awning stripes, cotton duck. D 78. 230
- 589 Boston Manufacturing Co., Boston, Mass.**—Cotton goods. B 70. 230
- 590 Cabot Manufacturing Co., Boston, Mass.**—Cotton goods. B 70. 230
- 591 Gale & Co., Boston, Mass.**—Lawn and other tents, canopies, and clothes dryer. (Outside.) 230
- 592 Greene & Daniels, Pawtucket, R. I.**—Ivory finish and six-cord spool cotton; gray, bleached, and dyed cotton yarns. N 76. 230
- 593 Fall River Bleachery, Fall River, Mass.**—Bleached cottons, shirtings, and sheetings. N 76. 230
- 594 Lowell Bleachery, Lowell, Mass.**—Bleached and colored cotton fabrics. N 73. 230
- 595 Amoskeag Manufacturing Co., Manchester, N. H.**—Tickings, denims, awning stripes, cotton flannels, ginghams, fancy shirtings, jeans, shirtings, sheetings, drillings. N 74. 230
- 596 Naumkeag Steam Cotton Co., Salem, Mass.**—Sateens, Pequot wide sheetings, bleached and unbleached, 5-4, 6-4, 7-4, 8-4, 9-4, 10-4; Naumkeag twilled sheetings, 8-4, 9-4, 10-4; Pequot, 36 inch and 40 inch; El Dorado, 36 and 40 inch sheetings. The product of these mills has a reputation for softness and durability, and for general excellence; the cotton used is especially selected with a view to securing these qualities, and the greatest care is used in their manufacture. N 74. 230
- 597 Massachusetts Cotton Mills, Lowell, Mass.**—Sheetings, shirtings, drillings, etc. N 73. 230
- 598 Tremont & Suffolk Mills, Lowell, Mass.**—Brown and bleached cotton flannels, twenty-six varieties, from the lightest to the heaviest grade, for summer, fall, and winter wear, from twenty-seven to thirty-six inches in width, superior in quality of material, grade, and finish: Suffolk drills, blue, brown and bleached. Sheetings, shirtings, and corset jeans. N 73. 230
- 599 Appleton Co., Lowell, Mass.**—Unbleached sheetings and drillings. N 73. 230
- 600 Boott Cotton Mills, Lowell, Mass.**—Brown and bleached cottons. N 73. 230
- 601 Shroder, F., & Co., New York, N. Y.**—Brown cottons, drills, and nankeens. B 75. 230
- 602 Nashua Manufacturing Co., Nashua, N. H.**—Brown and bleached cottons, cotton flannels, printings. N 77. 230
- 603 Jackson Co., Nashua, N. H.**—Heavy brown cottons. N 77. 230
- 604 Ocean Mills, Nashua, N. H.**—Brown and bleached cottons. N 77. 230
- 605 Shetucket Co., Norwich, Conn.**—Fancy stripes, denims, ducks, chevrons. N 77. 230
- 606 Falls Co., Norwich, Conn.**—Cotton duck, fancy colored duck tickings. N 77. 230
- 607 The Utica Steam Cotton Mills, Utica, N. Y.**—Very heavy and fine brown and bleached sheetings and shirtings, from one to three yards wide. N 74. 230
- 608 Mount Vernon Co., Baltimore, Md.**—Duck and sail twine. Manufacturers of cotton sail duck, enameling duck, hose and belting duck, U. S. hammock, bag, and cot duck; machine apron, and a superior article of duck for paper-makers' felting; from seven to fifteen ounce army tent and awning duck, plain and in stripes; cotton canvas, from nine to one hundred and thirty inches wide; sail twine, all numbers. D 78. 230
- 609 Hadley Co., Boston, Mass.**—Cotton yarns and warps, spool cottons, threads; harness and seine twines. N 75. 230
- 610 Union Wadding Co., Providence, R. I.**—Cotton wadding, batting, and machinery waste. F 74. 230
- 611 Smith, H. E., & Co., Providence, R. I.**—Cotton yarns for hosiery, shawl, and carpet manufacture. N 74. 230
- 612 Richardson, C. D., & Co., Philadelphia, Pa.**—Tents. (Outside.) 230
- 613 Hale, B. S., & Co., Lawrence, Mass.**—Fish lines. N 75. 230
- 614 Laconia Company, Biddeford, Me.**—Sheetings, shirtings, drills, and jeans. R 78. 230
- 615 Pepperill Manufacturing Co., Biddeford, Me.**—Sheetings, shirtings, drills, and jeans. R 78. 230
- 616 Otis Company, Palmer, Mass.**—Denims. N 75. 230
- 617 Palmer Mills, Palmer, Mass.**—Dress goods. N 75. 230
- 617a Trainer, D., & Sons, Linwood Station, Pa.**—Cotton yarns and tickings. C 78. 230
- 618 Brinckerhoff, Turner, & Co., New York, N. Y.**—Duck, canvas, ravens, awning stripes, bags, twines, bunting. D 73. 230
- 619 Washington Manufacturing Co., Gloucester, N. J.**—Printing cloths, etc. N 75. 230
- 622 Monadnock Mills, Claremont, N. H.**—Quilts, counterpanes, and wide sheetings. H 78 and N 74. 230

Woven Goods.

- 623 American Linen Co., Fall River, Mass.—Printing cloths. B 77. 230
- 624 Annawan Manufacturing, Fall River, Mass.—Printing cloths. B 77. 230
- 625 Barnard Manufacturing Co., Fall River, Mass.—Printing cloths. B 77. 230
- 626 Border City Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 627 Chace Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 628 Flint Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 629 Granite Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 630 Mechanics Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 631 Merchants Manufacturing Co., Fall River, Mass.—Printing cloths. B 77. 230
- 632 Metacomet Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 633 Narragansett Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 634 Osborn Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 635 Richard Borden Manufacturing Co., Fall River, Mass.—Printing cloths. B 77. 230
- 636 Sagamore Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 637 Shove Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 638 Slade Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 639 Stafford Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 640 Tecumseh Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 641 Troy Cotton and Woolen Manufacturing, Fall River, Mass.—Printing cloths. B 77. 230
- 642 Wampanoag Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 643 Weetamoe Mills, Fall River, Mass.—Printing cloths. B 77. 230
- 644 Dwight Manufacturing Co., Chicopee, Mass.—Brown and bleached sheetings and shirtings. F 69. 230
- 645 Lyman Mills, Holyoke, Mass.—Brown and bleached sheetings and shirtings, drills, lawns, cambrics, cotton flannels, etc. F 69. 230
- 646 Great Falls Manufacturing Co., Great Falls, N. H.—Bleached and brown sheetings and shirtings. F 69. 230
- 647 Schum, Philip, Lancaster, Pa.—Coverlets and counterpanes. Well known manufacturer of genuine Lancaster quilts, coverlets, counterpanes, carpets, cradle, bureau and tidy covers, stocking yarns, woolen carpet chains, etc. All kinds of dyeing done. These goods being all of my own manufacture, made of the very best of material, I guarantee them as represented and to give entire satisfaction in every respect. G 78. 230
- 647^a Wood, Wm., & Co., Philadelphia, Pa.—Cottonades. B 77. 230
- 648 Methuen Mill, New York, N. Y.—Jute bagging. F 76. 230
- 649 Webster Mills, New York, N. Y.—Jute bagging. F 76. 230
- 650 Nevine Mill, New York, N. Y.—Jute bagging. F 76. 230
- 651 Mississippi Mills, Wesson, Miss.—Yarns, cotton, cottonades. F 76. 230
- 652 Bullock, George & James M., Conshohocken, O.—Cotton warp. F 75. 230
- 653 Wortendyke Manufacturing Co., Wortendyke, N. J.—Lamp wicks and cotton yarns. N 75. 230
- 654 Moss Manufacturing Co., West-erly, R. I.—Shirtings. N 74. 230
- 655 Harris Manufacturing Co., Providence, R. I.—Bleached shirtings. The "Gem of the Spindle" exemplifies the limit of fineness consistent with durability. N 74. 230
- 656 Knight, B. B., & R., Providence, R. I.—Bleached cotton goods. N 75. 230
- 657 Glasgow Company, South Hadley Falls, Mass.—Ginghams, yarns. N 74. 230
- 658 Allendale Company, Providence, R. I.—Bleached shirtings and sheetings. N 74. 230
- 659 Groton Manufacturing Co., Philadelphia, Pa.—Bleached goods. N 74. 230
- 660 Franklin Manufacturing Co., Providence, R. I.—Bleached cottons. N 74. 230
- 662 Tucker, Carter, & Co., New York, N. Y.—Bagging. B 69. 230
- 663 Renfrew Manufacturing Co., South Adams, Mass.—B 75. 230
^a Cotton warps, skirtings. 230
^b Ginghams. 231
^c Cotton dress goods. 232
- 664 Gloucester Gingham Mills, Gloucester City, N. J.—N 76. 230
^a Cottonades, shirtings. 230
^b Ginghams, dress goods. 231
- 665 Langdon Manufacturing Co., Manchester, N. H.—Brown and bleached shirtings; fine brown and bleached G. B. shirtings. N 74. 230
- 666 Whittenton Manufacturing Co., Taunton, Mass.—N 76. 230
^a Cottonades, shirtings, tickings, denims, and awnings. 230
^b Dress goods and fancy checks. 231
- 667 York Manufacturing Co., Saco, Me.—Geo. C. Richardson & Co., selling agents, Boston and New York. N 74. 230
^a Cottonades light and heavy, ticking 28 inches by 32 inches wide, denims plain, striped, and plaid; shirtings and shirtings. 230
^b Dress goods, in great variety; nankins, and seersuckers. 231
- 668 Everett Mills, Lawrence, Mass.—B 73. 230
^a Fancy cottons, cottonades, ticking, denims, chevrot. 230
^b Stripes, ginghams, dress goods. 231
- 669 Davoll Mills, Fall River, Mass.—Selling agents, Wharton, Atkinson & Co., Philadelphia; E. C. Whitman, New York. N 76. 230
^a Sheetings, pillow muslins, shirtings, sil-estas. 230
^b Fancy cotton fabrics. 232

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26

Woven Goods, Felting, Yarn.

- 670 Hamilton Manufacturing Co.,** Lowell, Mass.—N 73.
 a Tickings, drillings, and canton flannels. 230
 b Printed and dyed calicoes, shirting and awning stripes. 232
- 671 Holt, R., Paterson, N. J.—N 74.**
 a Cotton and Turkish towels, terry cloth, dusters, etc. 230
 b Linen towels. 233
- 672 Stark Mills, Manchester, N. H.—N 74.**
 a Seamless bags, sheetings, and drills, over-all and double ducks. 230
 b Linen crash toweling. 233
- 673 Millville Manufacturing Co.,** R. D. Wood & Sons, Philadelphia and New York, sole agents.—F 75.
 a Bleached shirtings, cambrics, silesias. 230
 b Printed linings, umbrellas cloths, velums. 231
 c Window hollandes, tillottings, etc. 233
- 674 Bates Manufacturing Co.,** Lewiston, Me.—K 78.
 a Shirtings, skirtings, quilts, jeans, towels, knitting cotton, etc. 230
 b Gingham, damask, silesias. 232
 c Linen checks. 233
- 675 Ripka & Elton Mills, Philadelphia, Pa.—Cotton manufactures.** N 74. 231
- 676 Lancaster Mills, Clinton, Mass.—Fancy gingham.** N 77. 231
- 677 Belfast Mills, Philadelphia, Pa.—Ginghams.** N 76. 231
- 678 Albion Print Works, Conshohocken, Pa.—Solid colors suitings, plain blacks, grays, mourning prints, shirtings, and printed articles for men.** N 73. 232
- 678a Pacific Mills, Lawrence, Mass.—B 73.**
 a Calicoes. 232
 b Lawns, percales. 233
- 679 Hartel, Andreas, & Co., Penny-pack Print Works, Philadelphia, Pa.—Madder and fancy prints and shirtings.** N 75. 232
- 680 Brown, David S., & Co., Philadelphia, Pa.—Madder fancies, shirtings and mournings from Gloucester Manufacturing Co., Gloucester, N. J.; aniline, alizarine, oil, and madder colors and shirtings from Ancona Printing Co., Gloucester, N. J.** N 77. 232
- 681 Simpson, Wm., & Sons, 126 Chestnut street, Philadelphia, Pa.—Calico prints in mourning, fancy, and shirting styles. Manufacturers and calico printers of the popular alpaca finish, solid blacks, Berlin solids of all colors, aniline blacks, mourning prints, silver grays, Eddystone chocolates, hair cloth chevrons, and fancy prints. These styles are all fast colors, and are printed exclusively on the best extra 64 square cloth.** N 75. 232
- 682 Pretty, Grime, & Co., Philadelphia, Pa.—Calico prints.** N 74. 232
- 683 Green, S. H., & Sons, Clyde Bleachery and Print Works, River Point, R. I.—Printed calicoes.** N 74. 232
- 684 Richmond Manufacturing Co., Providence, R. I.—Printed calicoes.** N 75. 232
- 685 Manchester Mills, Manchester, N. H.—Prints.** N 73. 232
- 686 American Print Works, Fall River, Mass.—Printed calicoes, percales, cambrics, shirtings, indigo blues, greens, robes, seersuckers, etc. Special styles and colorings printed for export.** N 75. 232
- 687 Hamilton Woolen Co., South-bridge, Mass.—Prints, shirting prints, printed cambrics.** N 74. 232
- 688 Merrimac Mills, Lowell, Mass.—Printed and dyed calicoes.** N 73. 232
- 689 Stevens Linen Works, New York, N. Y.—Plain and twilled linen crases and diapers.** B 75. 233
- 690 Barbour Flax Spinning Co., Paterson, N. J.—Flax threads.** N 76. 233
- 690a American Linen Thread Co., Mechanicville, Saratoga county, N. Y.—Flax, gilling, and machine threads, warp, filling, and twines. Manufacturers of patent linen thread (on spools and in skeins) of all kinds, numbers, and colors; also, gilling thread, of all numbers; machine, shoe, carpet, fringe, whip, and McKay threads, in all varieties; linen floss, selvage, and hose warp; hose filling, broom and brush twines; pink and variegated twines; loom cord; line and tow yarns. All manufactured from the best foreign stock.** H 75. 233
- 691 McCrossan & Farr, New York, N. Y.—Printed linen and cotton, and white cotton handkerchiefs.** N 76. 233
- 692 American Linoleum Manufacturing Co., New York, N. Y.—Linoleum floor cloth.** N 77. 234
- 694 Blabon, Geo. W., & Co., Philadelphia, Pa.—Floor, carriage, upholstery, and table oil cloths and window shades.** N 77. 234
- 696 Violelet & Durlach, Elizabeth, N. J.—Floor oil cloths.** F 73. 234
- 698 Potter, Thos., Sons & Co., Philadelphia, Pa.—Oil cloths.** N 77. 234
- 700 Brasher, Wm. M., & Co., Brooklyn, N. Y.—Floor oil cloths.** F 71. 234
- 701 Reeve, R. H. & B. C., Camden, N. J.—Oil cloths.** F 71. 234
- 702 Powers, D., & Sons, New York, N. Y.—Floor oil cloths.** F 77. 234

Woven and Felted Goods of Wool and Mixture of Wool.

- 703 Shaffner & Stringfellow, Philadelphia, Pa.—Knitting cotton and Germantown wool.** B 75. 235
- 703a Knox Woolen Co., Camden, Me.—Paper makers' feltings and machinery cloths.** R 78. 235
- 704 Bacon, Chas. N., Winchester, Mass.—Felts for polishing, printing, erasing, etc.; cotton and wool wadding.** N 74. 235
- 705 New England Co., Rockville, Conn.—Fine fancy cassimeres, finest wool, fine spinning, indigo colors. The first mill in America to make fancy cassimeres.** B 76. 235
- 705a Noske, Henry, Philadelphia, Pa.—Woolen felts.** F 72. 235
- 706 Philadelphia Worsted Spinners' Association, Philadelphia, Pa.—Worsted yarns.** F 75. 235

Woven and Felted Goods.

- 707 Midnight Yarn Co., Philadelphia,** Pa.—Woolen knitting and Germantown yarns, representing process of manufacture. B 77. 235
- 708 Thornton, Samuel, & Sons, Philadelphia, Pa.**—Woolen fabrics. N 76. 235
- 709 Philips, James, jr., Fitchburg, Mass.**—Fine worsted coatings and suitings. Hunt, Catlin, & Valentine, sole agents, 107-113 Franklin street, New York, N. Y. B 77. 235
- 709^a Kirkman, James, Chester, Pa.**—Doeskins. B 78. 235
- 710 Ledward, J., & Son, Chester, Delaware county, Pa.**—Cassimeres and doeskins. B 76. 235
- 711 Horstmann, Wm. H., & Sons, Philadelphia, Pa.**—Woolen knitting yarns. These goods are known generally as Germantown, balmoral, cashmere, saxonian, and stocking yarns. They are particularly noted for brilliancy of colors, variety of shades, evenness of thread, and the low prices at which they are sold. H 73. 235
- 712 Globe Woolen Co., New York, N. Y.**—Fancy cassimeres. F 74. 235
- 713 Dryfoos, L., & Co., New York, N. Y.**—Felt skirts, embroidered and braided; Italian cloth skirts, trimmed and quilted. B 77. 235
- 713^a Kent Woolen Co., Centreville, R. I.**—Cassimeres. B 74. 235
- 713^b Stillwater Woolen Mills, Stillwater, R. I.**—Cassimeres. B 74. 235
- 714 Worumbo Manufacturing Co., Lisbon Falls, Me.**—Moscow beaver and other overcoatings. R 78. 235
- 715 Bel Air Manufacturing Co., Pittsfield, Mass.**—Fancy all-wool cassimeres. F 73. 235
- 716 Burlington Woolen Co., Winoski Fall, Vt.**—Woolens, castorines, moscows, kerseys, broadcloths, doeskins, elastic doeskins, elysians. F 73 and 74. 235
- 717 Broad Brook Co., Broad Brook, Conn.**—Fancy cassimeres. F 75. 235
- 718 Weybosset Mills, Providence, R. I.**—Fancy cassimeres. Samples of regular production made for the general market. Wendell Hutchinson & Co., New York, selling agents. F 74. 235
- 719 Howard, R., & Son, Apponang, R. I.**—Woolen stocking yarns, fancy and plain colors. B 75. 235
- 719^a State of Oregon (by A. J. Dufur).**—Woolen fabrics. H 71. 235
- 720 Wanskuck Co., Providence, R. I.**—Worsteds coatings, overcoatings, kerseys. B 75. 235
- 721 Rodman, Robt., La Fayette, R. I.**—Doeskins. N 75. 235
- 722 Sawyer Woolen Mills, Dover, N. H.**—Silk and wool cassimeres, fancy cassimeres, double and twist cassimeres. F 75. 235
- 722^a Clinton Mills Co., Norwich, Conn.**—B 74. 235
^a Tweeds and repellents. 235
^b Blankets. 237
- 723 Hinsdale Bros., Hinsdale, Mass.**—Kerseys, beavers, worsted suitings, etc. B 74. 235
- 724 Rockville Manufacturing Co., Rockville, Conn.**—Fancy cassimeres and worsteds. B 74. 235
- 725 Hockanum Co., Rockville, Conn.**—Fancy cassimeres and worsteds. B 74. 235
- 727 Eddy's, Jesse, Sons, Fall River, Mass.**—Woolens for men's wear. F 74. 235
- 728 U. S. Bunting Co., Lowell, Mass.**—Bunting, flags, worsted damasks and moreens, skirtings, and dress buntines. H 76. 235
- 729 Middlesex Co., Lowell, Mass.**—Woolen goods. B 77. 235
- 729^a Shuler & Benninghofen, Hamilton, O.**—Felts for paper-makers. B 76. 235
- 729^b Uxbridge Woolen Co., Uxbridge, Mass.**—Cassimeres. B 74. 235
- 730 Germania Mills, Holyoke, Mass.**—Eskimos, doeskins, and fur beavers, overcoatings. C 78. 235
- 731 Norway Plains Co., Rochester, N. H.**—Blankets. B 73. 235
- 732 Norwich Woolen Co., Norwich, Conn.**—Blankets and repellents. B 73. 235
- 733 Union Manufacturing Co., Wolcottville, Conn.**—Black doeskins. B 73. 235
- 734 Meriden Woolen Co., West Meriden, Conn.**—Fancy cotton warp cassimeres and coatings. B 73. 235
- 734^a Baltic Woolen Mills, Philadelphia, Pa.**—Woolen goods. F 72. 235
- 735 Niantic Woolen Mills, Norwich, Conn.**—Suitings and repellents. B 73. 235
- 736 Mason, C. F., & Co., Providence, R. I.**—Fancy cassimeres. B 76. 235
- 737 Wood, Morrell, & Co., Woodvale Woolen Mills, Johnstown, Pa.**—Cassimeres made from half-blood wool. B 77. 235
- 738 Kirkman, James, Chester, Pa.**—Doeskins. B 78. 235
- 740 Peirce, C. W. & J., Bristol, Pa.**—G 78. 235
^a Polishing felts and crumb cloths. 235
^b Skirts. 238
- 741 Mississippi Mills, Wesson, Miss.**—Wool fillings, jeans, cassimeres, tweeds, linseys. F 76. 235
- 742 Bullock, Geo. & Jas. M., Conshohocken Woolen Mills, Conshohocken, Pa.**—Doeskins, moscows, beavers, cloth. F 75. 235
- 743 Fox, Henry, & Co., Urbana, O.**—D 78. 235
^a Cassimeres, tweeds, satinets, and yarns. 235
^b Flannels. 236
- 744 Belfast Mills, Philadelphia, Pa.**—N 76. 235
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- 745 Roy, Jas., & Co., West Troy, N. Y.**—F 77. 235
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- 746 Fay, C. J., Camden, N. J.**—F 74. 235
^a Felt roofing and siding. 235
^b Ceiling and floor carpeting. 236

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- 747 McKee, Jos. D., Penn Knitting Mills, Philadelphia, Pa.—N 74.**
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 b Worsted shawls. 237
- 748 Bates Manufacturing Co., Lewiston, Me.—R 78.**
 a Beavers and repellents. 235
 b Dress goods. 238
- 749 Lippitt Woolen Co., Providence, R. I.—B 73.**
 a Elysian beaver overcoatings, fancy cassimeres, and suitings. 235
 c Flannels. 236
- 750 Peace Dale Manufacturing Co., Peace Dale, R. I.—F 77.**
 a Cassimeres, coatings, lastings, etc. 235
 b Woolen shawls. 237
- 751 Schofield, Seville, Philadelphia, Pa.—B 74.**
 a Piece goods and coatings. 235
 b Blankets. 237
- 752 Camden Woolen Mills, Philadelphia, Pa.—B 76.**
 a Woolen goods, cassimeres, suitings, cloakings, repellents. 235
 b Plaid opera flannels. 236
 c Dress goods, etc. 238
- 753 Piqua Woolen Mills, F. Gray, O'Ferrall & Co., Piqua, O.—B 75.**
 a Paper-makers' fourdrinier and cylinder wet and press felts and jackets, for all kinds of paper. All felts warranted. 235
 b Flannels. 236
 c Blankets. 237
- 754 Washington Mills, Lawrence, Mass.—F 73 and 74.**
 a Worsted coatings, cloakings, and repellents. 235
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- 755 Landenberger's, Martin, Sons, Philadelphia, Pa.—F 67.**
 a Worsted coatings and yarns. 235
 b Shawls. 237
 c Dress goods. 238
- 756 Dobson, Jno. & Jas., Philadelphia, Pa.—H 77.**
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 b Blankets. 237
 c Carpets. 239
- 757 Steffan, F., & Co., Philadelphia, Pa.—H 76.**
 a Coatings. 235
 b Shawls. 237
 c Worsted dress goods. 238
- 758 Pontoosuc Woolen Manufacturing Co., Pittsfield, Mass.—F 76.**
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 b Sleeping car blankets and summer dusters. 237
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 d Carriage rugs. 239
- 759 Belvidere Woolen Manufacturing Co.—Flannels. F 74.** 236
- 761 Ballard Vale Mills, New York, N. Y.—Fine white flannels. B 77.** 236
- 762 Waumbeek Co., New York, N. Y.—Plain white flannels. B 77.** 236
- 763 Norway Plains Co., New York, N. Y.—Plain white flannels. B 77.** 236
- 764 Lucas, B., & Co., New York, N. Y.—Plain white domests and Shakers. B 77.** 236

- 765 Groveland Mills, New York, N. Y.—Scarlet, yellow, and blue plain flannels, scarlet and blue twilled flannels, scarlet Shaker opera flannels. B 77.** 236
- 766 Columbia Spring Co., New York, N. Y.—Fancy flannels. B 77.** 236
- 767 Stott, C. H. & F. H., New York, N. Y.—Mixed twilled flannel. B 77.** 236
- 768 Titus, E., & Sons, New York, N. Y.—White and Shaker flannels. B 77.** 236
- 770 Gilbert, Geo. H., Manufacturing Co., Ware, Mass.—F 72.**
 a Flannels—white, opera, silk warp, plaid, moleskin, swansdown, gauze, medicated, etc. 236
 b Blankets. 237
- 771 Bachman, S., New York, N. Y.—Shawls. B 75.** 237
- 771a Sandford Mills, Sandford, Me.—Carriage robes. R 78.** 237
- 772 Gibson & Tyler, New York, N. Y.—Fine white blankets. B 77.** 237
- 772a Bloodgood, Mrs. I. S., New York, N. Y.—Embroidered afghans. N 52.** 237
- 773 Waterloo Woolen Manufacturing Co., Waterloo, N. Y.—Woolen shawls. B 77.** 237
- 773a Bishop & Northrup, Wyandotte, Mich.—Woolen robes, mats, and dusters. F 71.** 237
- 774 Mission Woolen Mills, San Francisco, Cal.—B 75.**
 a Blankets. 237
 b Woolen fabrics. 238
- 775 Arlington Mills, Lawrence, Mass.—Black alpacas, in ten qualities; black mohair brillantines, in five qualities; figured mohair brillantines, in two qualities; and roubaix poplins, in assorted colors. The black alpacas and mohair brillantines are "warp dyed," and are made from the choicest materials, in the most thorough manner. Especial attention is invited to the softness of finish, brilliancy of color and lustre, uniformity and perfection of manufacture. The roubaix poplin is a "yarn dyed" fabric, not dyed in the piece,—consequently, the strength of the fibre is preserved, and the color made more permanent than if "piece-dyed." The peculiarity of the finish is such that the goods will not cockle. F 77.** 238
- 775a Pacific Mills, Lawrence, Mass.—Poplins, alpacas, serges, cashmeres, reps, jacquards, cretonnes, jacconets, and crêpe. B 73.** 238
- 776 Peckham Manufacturing Co., Providence, R. I.—Woolen and merino knitting yarns, tweeds, doeskins. B 76.** 238
- 777 Manchester Mills, Manchester, N. H.—Worsted dress goods. N 73.** 238
- 778 Turner, John, Norwich, Conn.—Dyed and printed worsted, woolen, and cotton yarns, for weaving, knitting, etc. B 77.** 238
- 779 Tunxis Mills, Poquonnock, Conn.—White and colored worsted yarns; process of manufacture from raw wool. B 76.** 238
- 780 Farr Alpaca Co., New York, N. Y.—Alpacas, serges, cashmeres, fancy linings. B 74.** 238
- 781 Hamilton Woolen Co., Southbridge, Mass.—Delaines, reps. N 74.** 238

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- 782** Wood, Wm., & Co., Philadelphia, Pa.—Wool mixture suitings. B 77. 238
- 782a** Chapman & Bros., Belfast, Me.—Dry goods. N 76. 238
- 783** Walshaw, Wm., Saxonville, Mass.—Colored wool and yarns. F 69. 238
- 783a** White, Payson & Co., Boston, Mass.—Cotton and worsted textile fabrics. N 73. 238
- 784** Lowell Manufacturing Co., Boston, Mass.—F 77.
 a Seiges and lastings. 238
 b Wilton and Brussels, two and three ply ingrain carpeting. 239
- 785** Blake, C. H. & F. D., New York, N. Y.—Alpacas, mohairs, cashmeres, and worsted serges. B 75. 238
- 786** Wood & Haslam, Camden, N. J.—B 77.
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 b Quilts, table cloths. 241
- 787** Smith, Alex., & Sons Carpet Co., Yonkers, N. Y.—Power loom, Axminster, tapestry Brussels, and tapestry ingrain carpetings. F and H 73 to 76. 239
- 787a** McCallum, Crease, & Sloan, Philadelphia, Pa.—Ingrain carpets. H 75. 239
- 788** Wentworth, C. B., & Co., Boston, Mass.—Star-quilted carpet lining. F 75. 239
- 788a** Hutchison, J. & H., Brooklyn, N. Y.—Rugs and mats. O 78. 239
- 789** Gibb & Co., Philadelphia, Pa.—Rag carpet. F 77. 239
- 789a** Seffarlen & Fritz, Philadelphia, Pa.—Carpet warps. F 77. 239
- 790** Dornam, Bros. & Co., Philadelphia, Pa.—Ingrain carpets and damask. F 77. 239
- 790a** Mayall, Miles, Boston, Mass.—Carpet linings and stair pads. D 78. 239
- 791** Bromley, Jno., & Sons, Philadelphia, Pa.—Ingrain and damask Venetian carpets. H 77. 239
- 791a** Bailey, Edw. H., New York, N. Y.—Carpet lining and stair pads. E 78. 239
- 792** Leedom, Shaw, & Stewart, Philadelphia, Pa.—Carpetings. F 77. 239
- 792a** Lewis, Willard, Walpole, Mass.—Carpet lining. D 78. 239
- 793** Chipman, Geo. W., & Co., Boston, Mass.—Carpet lining and stair pads. F 75. 239
- 794** Taylor, Jas., & Muller, S. N., Newark, Del.—Rag and rug carpet. F 74. 239
- 795** Hartford Carpet Co., Hartford, Conn.—Brussels and three and two ply ingrain carpeting. F and H 73 to 76. 239
- 796** Wagan, R. M., Mount Lebanon, N. Y.—The Shakers' plush floor rugs. P 52. 239
- 797** Ivins, Dietz, & Magee, Philadelphia, Pa.—Three and two ply ingrain carpets. H 75. 239
- 798** Bigelow Carpet Co., Clinton, Mass.—Jacquard Brussels and Wilton carpets, rugs and mats. F and H 73 to 76. 239
- 799** Lowell Carpet Co., Boston, Mass.—Wilton and Brussels, two and three ply ingrain carpeting. F and H 73 to 76. 239
- 800** Roxbury Carpet Co., Boston, Mass.—Tapestry carpeting. F and H 73 to 76. 239
- 801** Read Carpet Co., Bridgeport, Conn.—Two ply ingrain carpets. H 77. 239
- 802** Farrington & Kinsey, Rahway, N. J.—Wool extracted from rags. B 76. 240
- 803** Pawtucket Hair Cloth Co., Pawtucket, R. I.—Automatically woven hair cloths for upholstery. B 74. 240
- Silk and Silk Fabrics, and Mixtures in which Silk is the predominating Material.**
- 804** Belding Bros. & Co., Rockville, Conn.—H 74.
 a Twisted silk in gum, raw silk, cocoons. 242
 b Machine twists; sewings, embroidery, and saddlers' silks; buttonhole twist. 243
- 805** Aub, Hackenburg, & Co., Philadelphia, Pa.—H 76.
 a Raw silk and cocoons. 242
 b Machine and buttonhole twist, sewing and spool silk. 243
- 806** Franke, Louis, New York, N. Y.—H 74.
 a Thrown silk. 242
 b Silk fringes, passementerie, braids, cords, tassels. 249
- 806a** Boissiere, E. V. de, Williamsburg, Kansas.—H 74.
 a Silk cocoons, raw silk, and silk-worm eggs, produced in Kansas. 242
 b Velvet ribbons. 248
- 807** Hamil & Booth, Paterson, N. J.—H 76.
 a Raw and thrown silks. 242
 b Dress goods, tie silks. 245
 c Ties. 247
 d Ribbons. 248
- 808** Seavey, Foster, & Bowman, Boston, Mass.—H 75.
 a Cocoons, raw silk. 242
 b Twisted silk. 243
- 808a** Newmann, Joseph, San Francisco, Cal.—H 75.
 a Cocoons, raw silk, silk-worm eggs. 242
 b Silk flags. 247
- 809** Werner, Itchner, & Co., Philadelphia, Pa.—Silk ribbon fabrics. H 74. 243
- 810** Brainerd, Armstrong, & Co., offices, 469 Broadway, New York; 301 Market street, Philadelphia; 13 German street, Baltimore.—Spool and skein silks, for families, merchant tailors' clothing manufacturers, and shoe manufacturers. Hand-some cabinets furnished to retailers. Having no western or southern office, we will make liberal arrangements with dealers, or responsible parties wishing to act as agents for those sections. H 75. 243
- 811** Hovey, F. S., Philadelphia, Pa.—Sewing silks and machine twists. H 76. 243
- 812** Morel, Chas., & Sons, Philadelphia, Pa.—Skein silks, dyed. H 76. 243

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26

Silk, Clothing.

- 813 Cheney Brothers, Hartford and South Manchester, Conn.—H 75.**
a Twist. 243
b Spun silks and spun silk fabrics. 244
c Dress goods, serges, florentines, and foulards. 245
d Organzine, tram, and handkerchiefs. 247
e Ribbons. 248
- 814 Atwood & Richmond, Brooklyn, Conn.—Ounce silk machine twist, black and colors. H 77.** 243
- 815 Nonotuck Silk Co., Florence, Mass.—Black and colored machine twist, buttonhole twist, embroidery and sewing silk. H 74.** 243
- 816 Hayden, J. H., & Son, Windsor Locks, Conn.—Black sewing silk. H 76.** 243
- 817 Heminway, M., & Sons Silk Co., New York, N. Y.—Spool, embroidery, and saddlers' silk; machine and buttonhole twist, etc. H 73.** 243
- 818 Holland Manufacturing Co., Williamantic, Conn.—Silk machine twist and sewing silk. H 74.** 243
- 819 Baare, Fred., Paterson, N. J.—Millinery, tie, and umbrella silks. H 77.** 244
- 820 Strange, Wm., & Co., Paterson, N. J.—H 73.**
a Millinery and dress silks. 245
b Ribbons. 248
- 821 Dexter, Lambert, & Co., New York, N. Y.—H 73.**
a Silk piece goods. 245
b Ribbons. 248
c Dress trimmings. 249
- 822 Wright, Wm. P., Philadelphia, Pa.—Oiled silks and muslins. H 76.** 245
- 823 Weidmann & Greppo, Paterson, N. J.—Dyed silk, blacks and colors. H 76.** 246
- 824 American Silk Label Manufacturing Co., 389 Broome street, New York, N. Y.—Names of signers of Declaration of Independence, labels, and other designs, woven in silk; for clothiers, merchant tailors, and hatters. H 77.** 246
- 827 Meyenberg, S. M., Paterson, N. J. Office, 40 Lispenard street, New York.—N 74.**
a Upholstery satins. 246
b Ladies' silk scarfs, sewing silk veils; millinery silks and gauze fabrics. 247
- 828 Stearns, Jno. N., & Co., New York, N. Y.—H 77.**
a Brocade silks. 246
b Silk handkerchiefs. 247
- 829 New York Woven Label Manufacturing Co., New York, N. Y.—Woven labels and hangers. H 74.** 247
- 831 Horstmann, W. H., & Sons, Philadelphia, Pa.—Dress, carriage, upholstery, and undertakers' trimmings; narrow textile fabrics; passementerie. H 73.** 249
- 832 Kohn, Tobias, Novelty Weaving and Braiding Works, Hartford, Conn.—Star and embroidery braids. H 76.** 249
- 833 Dale Manufacturing Co., Paterson, N. J.—Silk, mohair, and fancy trimming braids; cords, bindings, hat bands, braided sewings, and watch guards. H 75.** 249
- 835 Fleisher, S. B. & M., Philadelphia, Pa.—Alpaca braids. F 71.** 249

- 836 Sutro Bros., New York, N. Y.—Embroidery braids, put up on patent cards, stating correctly the measurement of each skein. F 71.** 249
- 837 Nottingham Lace Works, Brooklyn, N. Y.—Guipure, thread, cashmere, and other laces and trimmings; hair nets. Manufacturers from original designs of guipure laces, thread, cashmere, Spanish and millinery laces, silk purlings, lace fringes, hair nets, etc.; also, a specialty of all desirable styles of silk lace ties and scarfs. Orders sent to A. G. Jennings, 428 Broome street, New York. H 75.** 249
- 838 Turner, John, Norwich, Conn.—Picture and furniture cords. B 77.** 249
- 839 Goff, D., & Son, Pawtucket, R. I.—Alpaca skirt braid. F 71.** 249
- 840 Silver Lake Co., Boston, Mass.—Solid braided cords. F 68.** 249
- 841 Kelty, G. L., & Co., New York, N. Y.—Furniture coverings, gimps, fringes, cords, tassels, and other upholstery goods. C 78.** 249

Clothing, Jewelry, and Ornaments, Traveling Equipments.

- 842 Häpke, A. B., Harrisburg, Pa.—Knit goods and embroideries. F 69.** 250
- 842a Lowery & Williams, Utica, N. Y.—Merino and cotton underwear. F 73.** 250
- 843 Moore, Leopold, Philadelphia, Pa.—B 69.**
a Wrappers, shirts. 250
b Silk hats. 251
- 843a Munson Manufacturing Co., Cohoes, N. Y.—Merino and cotton underwear. F 73.** 250
- 844 Sachse, F., & Son, S. E. corner Eighth and Vine streets, Philadelphia, Pa.—Finest American dress shirts; also, cricket, club, fire, base-ball, yachting, and society shirts. F 69.** 250
- 844a Meyer, Jonasson, & Co., New York, N. Y.—Felt skirts. F 78.** 250
- 845 Butterick, E., & Co., New York, N. Y.—Paper patterns for ladies' and children's garments. H 70.** 250
- 846 Maize & Schwartz, Philadelphia, Pa.—Military uniforms. C 78.** 250
- 847 Chapman, Mrs. Dr. H. M., 219 South Eighth, and 336 South Fifth street, Philadelphia, Pa.—Patent skirt supporting, shoulder brace, puff corset. Requires no padding; allows the form its natural shape without pressure. F 69.** 250
- 847a Wyoming Valley Knitting Co., Pittston, Pa.—Hosiery and underwear. F 73.** 250
- 848 Cooper, Henry Prouse, New York, N. Y.—Clothing. F 72.** 250
- 849 Schuyler, Hartley, & Graham, New York, N. Y.—Military and naval equipments, society and theatrical goods. F 70.** 250
- 849a Moeller, C. H., St. Louis, Mo.—Netted underwear. F 71.** 250
- 850 Glazier, J. J., Bro. & Co., Philadelphia, Pa.—Brown, bleached, and colored hose and half hose. F 72.** 250
- 850a Fall River Merino Co., Fall River, Mass.—Ladies' and men's underwear. F 73.** 250

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Clothing, Ornaments.

- 851** Judson Bros., New York, N. Y.—Shirts, underwear, drawers. F 70. 250
- 851a** Weldon, Dana, & Co., San Francisco, Cal.—Stocking supporters, ladies' belts, etc. F 71. 250
- 852** Thalheimer & Hirsch, Philadelphia, Pa.—Gentlemen's white and fancy shirts, underwear, collars, and cuffs. F 61. 250
- 852a** Dudley Hosiery Co., Newton Lower Falls, Mass.—Knit underwear, hosiery. F 73. 250
- 853** Michaelis & Kaskel, 853 Broadway, New York, N. Y.—Shirts, underwear, and pajamas; anti-rheumatic flannels, and embroideries. Manufacturers of the finest dress shirts and underwear, to order only; embroiderers, and importers of gentlemen's furnishing goods; depot for Dent's London-made kid gloves, Cartwright and Warner's merino underwear, and Martin's umbrellas; sole agents in the United States for Lalritz's celebrated anti-rheumatic flannels and medicinal preparations. Office, during the exhibition, at the Transcontinental Hotel, opposite the Main Building. F 67. 250
- 853a** Leighton, Chas., New Orleans, La.—Shirt. F 71. 250
- 854** Harvey & Baird, Philadelphia, Pa.—Shirts. F 72. 250
- 854a** Eager, P. B., Tower, & Co., Boston, Mass.—C 78. 250
a Oiled clothing. 250
b Oiled hats. 251
- 855** Griswold, Catherine A., New York, N. Y.—Corsets. F 69. 250
- 856** Devlin & Co., Clothiers, Broadway, corner Grand street; Broadway, corner Warren street, New York, N. Y.—Military uniforms, for army, navy, and national guard; gentlemen's dress and business suits; duck vests, robes-de-chambre, breakfast jackets, and shirts; also, boys' and youths' clothing. F 67. 250
- 856a** Hemple, J. C., Baltimore, Md.—Rubber cloth diaper. F 72. 250
- 857** Prindle, G. H., Philadelphia, Pa.—Muffs and boas, caps, cloaks, afghans, capes, hoods, designs for bed spreads. F 70. 250
- 857a** Thudium, C. A., & Son, Philadelphia, Pa.—Woolen and worsted cardigan jackets. B 79. 250
- 858** Moore, George, New York, N. Y.—Bias and bias neck cutter. H 71. 250
- 858a** Bishop & Northrup, Wyandotte, Mich.—Wool dusters. F 71. 250
- 859** Thomas, A. W., Philadelphia, Pa.—Bustle, skirt elevator, bosom form. F 70. 250
- 859a** Jacobs, Strouse, & Co., New York, N. Y.—Corset clasps and busks. T 62. 250
- 860** Rosenbach & Co., Philadelphia, Pa.—Shirts, pantaloons, overalls, drawers. F 68. 250
- 860a** Schoenhof, J., & Co., New York, N. Y.—Skirts in embossed and trimmed effects. F 70. 250
- 861** Conrad Bros., Philadelphia, Pa.—Shirts, collars, cuffs, etc. F 67. 250
- 862** National Suspender Co., New York, N. Y.—Shoulder braces and suspenders. F 68. 250
- 862a** Oliver, Thomas, New York, N. Y.—Transfer for measuring and cutting coats. P 68. 250
- 863** Cohn, M., & Co., Novelty Corset Works, New York, N. Y.—Woven corsets. F 69. 250
- 864** Piqua Woolen Mills, Piqua, O.—Jackets and woolen socks. B 75. 250
- 865** Taylor, S. T., New York, N. Y.—System of dressmaking, bias cutter, fashion journals. F 71. 250
- 866** Hopkins, W. T., Philadelphia, Pa.—Ladies' and children's undergarments, infants' dresses, hoop skirts, corsets, panniers, bustles. F 69. 250
- 867** Horstmann, Wm. H., & Sons, Philadelphia, Pa.—Military and theatrical goods. Military, society, regalia, church, and theatrical goods; flags, banners, bunting, army, navy, national guard, and band equipments, in great variety; regalia, jewels, and properties for Masonic Blue lodges, chapters, commanderies, Scottish Rite, and other societies; Knights Templar uniforms a specialty. A full line of materials and trimmings suited to all the above lines. H 73. 250
- 868** Demorest, Mme., New York, N. Y.—Fashion patterns and bulletin, dress-cutting system, corsets, shoulker brace, skirt and stocking suspenders. F 68. 250
- 869** Nashawannuch Manufacturing Co., Easthampton, Mass.; factories, Easthampton, Mass.; salesrooms, 74 and 76 Worth street, New York. —Elastic rubber suspenders and webs. Manufacturers of elastic suspenders, frills, and webs, in silk, worsted, and cotton; new styles, plain and figured, in great variety, constantly produced. This company successfully introduced in this country "Goodyear's" patent vulcanized rubber, in woven elastic goods, and continues its use very extensively. F 67. 250
- 871** Thompson, E. O., merchant tailoring, 408 Walnut street, Philadelphia, Pa.—Clothing. Exemplification of mechanical and artistic tailoring is displayed in these garments, made to order for competition, designed, also, to illustrate characteristic national workmanship, in their embellishment, by trimmings made of the national colors and coins; also particular merit is claimed for the perfect fitting pantaloons, cut according to the process patented by the exhibitor. F 71. 250
- 872** Sternberger, L. & S., Philadelphia, Pa.—White shirts. Manufacturers of the "Eclipse" fine white shirts; shirt fronts, drawers, overalls, etc. F 68. 250
- 873** Norfolk & New Brunswick Hosiery Co., New Brunswick, N. J.—Ladies', gentlemen's, and children's knitted underwear; shirts, vests, pants, and drawers; ladies' and misses' union dresses, gentlemen's and boys' merino wool half hose; ladies' and misses' merino and wool hose and three-quarter socks, in various colors. We manufacture only full fashioned or regular made goods of fine qualities. H. J. Libby & Co., agents, No. 57 White street, New York. F 70. 250

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 20

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1814.

1876.

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ESTABLISHED JULY 5, 1814.

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FINE JEWELRY, CHAINS, BRACELETS,
18-KARAT PLAIN RINGS, etc. DIAMONDS A SPECIALTY.

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OUR CASE IS No. 3731, CENTRE OF MAIN BUILDING.

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13 Kilby Street.

PHILADELPHIA.

Clothing.

- 874 Warner Bros., New York, N. Y.—Corset and skirt supporter, corset waist. F 70. 250
- 875 Bowers, Jas., & Co., Newark, N. J.—Sewed corsets and rivetless corset clasps. F 69. 250
- 876 Alkinson, Henry, Philadelphia, Pa.—White shirts, buckskin shirts, and drawers. F 70. 250
- 877 Zäuner, Henry, Philadelphia, Pa.—Lace, silk, and meo caps, hand knit and crochet zephyr goods, for infants. F 70. 250
- 878 Borm, L., Philadelphia, Pa.—Dress suit. F 69. 250
- 880 Wilson, J. H., Philadelphia, Pa.—Military goods. F 70. 250
- 881 Foy & Harmon, New Haven, Conn.—Skirt-supporting corset. F 69. 250
- 882 America Hosiery Co., New Britain, Conn.—Wool, merino, and cotton underwear, hosiery. F 68. 250
- 883 Worcester Corset Co., Worcester, Mass.—Corsets, corset and skirt supporters. F 69. 250
- 884 Boston Comfort Corset Co., Boston, Mass.—Corset without bones. F 69. 250
- 885 Palmer & Williams, Boston, Mass.—Jacqueline corsets and misses' waists. F 69. 250
- 886 Denham, T. M., & Brother, New Bedford, Mass.—White laundried shirts and shirt bosoms. F 68. 250
- 887 Rockhill & Wilson, Philadelphia, Pa.—Clothing. F 69. 250
- 888 Lowell Hosiery Co., Lowell, Mass.—Women's plain cotton hose. F 69. 250
- 889 Wanamaker & Brown, Philadelphia, Pa.—Gentlemen's, youths', and children's ready-made clothing; gentlemen's furnishing goods. B 67. 250
- 890 Wanamaker, John, & Co., Philadelphia, Pa.—Ancient and modern clothing worn by American gentlemen during the past century. F 67. 250
- 892 Cummings, J. S., & Co., Philadelphia, Pa.—Scarfs, cravats, stocks, bows, and neck wear. F 68. 250
- 893 Hughes, Thos., & Co., Bristol, Pa.—Cotton, merino, and wool hosiery. F 72. 250
- 894 Strahan, Hodgson, & Co., New York, N. Y.—Linen collars and cuffs. F 72. 250
- 895 American Suspender Co., Waterbury, Conn.—Webbing frills and suspenders. F 68. 250
- 896 Brewster Bros & Co., Birmingham, Conn.—Corsets, combined corset and skirt supporters, corset clasps. F 69. 250
- 897 Gabriel, Henry, & Sons, Allentown, Pa.—Knitted woolen and cotton hosiery. F 68. 250
- 898 American Molded Collar Co., Boston, Mass.—Combined cloth and paper collars. These collars are well known for their complete shape to the neck. The collars and cuffs have a pure starch finish, and are suitable for any gentleman to wear, always being of the latest fashion. The "molding" process, by which each collar is made to fit the neck perfectly and easily, is controlled exclusively by this company. These goods have been awarded the first prize at several expositions. F 70. 250
- 899 Frost, Geo., & Co., Boston, Mass.—Corsets, waists, hose supporter, emancipation suit, and under-flannel. F 70. 250
- 900 Sweet, Orr, & Co., factory, Wappinger's Falls, N. Y.; office, 345 Broadway, New York City.—Orr's pantaloons, overalls, and engineer jackets. The peculiar cut of these overalls must be noticed, by which such seat-room is given that the wearer feels perfect ease, in all positions; no binding or straining in any part; their strength is such that they are "warranted never to rip." F 76. 250
- 901 Bickford, Dana, New York, N. Y.—Knitted articles made on Dana Bickford's knitting machines. F 68. 250
- 902 Beatty Hosiery Mills, Philadelphia, Pa.—Hosiery. F 73. 250
- 903 Landenberger's, Martin, Sons, Philadelphia, Pa.—Hosiery and knit goods. F 67. 250
- 904 United States Corset Co., New York, N. Y.—Corsets. B 71. 250
- 905 Sharpless & Sons, Philadelphia, Pa.—Ladies' costumes. B 68. 250
- 906 Rothschild Bros. & Gutman, New York, N. Y.—Shirts, drawers, and undershirts. F 69. 250
- 907 Cameron, Wm., & Son, Philadelphia, Pa.—Embroidering, braiding, and stamping designs; children's clothing, indelible ink marking. F 70. 250
- 908 Dress Reform Co., Boston, Mass.—Dress reform clothing. F 72. 250
- 909 Otis Co., Ware, Mass.—Hosiery and underwear. N 75. 250
- 910 Hayden, James, Philadelphia, Pa.—Shirts, drawers, and necktie shields. F 72. 250
- 911 Peck & Greene, Brooklyn, N. Y.—Worsted and silk goods for theatrical, boating, and general underwear. B 75. 250
- 912 Star Knitting Co., Cohoes, N. Y.—Cotton, woolen, and merino shirts, drawers, pantalets, and union suits. F 67. 250
- 913 Parsons, J. H., & Co., Cohoes, N. Y.—Woolen, merino, and cotton shirts; drawers, pantalets, and union suits. F 67. 250
- 914 Brookside Hosiery Mills, Troy, N. Y.—Cotton, woolen, and merino shirts; drawers, pantalets, and union suits. F 67. 250
- 915 McDonnell, Kline, & Co., Amsterdam, N. Y.—Cotton, woolen, and merino shirts; drawers, pantalets, and union suits. F 67. 250
- 916 Bennett, E., Brooklyn, N. Y.—Shirts. F 68. 250
- 917 Coon & Van Volkenburgh, Troy, N. Y.—Men's linen collars and cuffs. F 67. 250
- 918 Ellis Manufacturing Co., Waltham, Mass.—Stocking supporters. H 71. 250

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-28.

Clothing, Ornaments, Jewelry.

- 919 Homer, Colladay & Co., Philadelphia, Pa.—F 71.
 a Ladies' dresses, trousseaux, neck-ties, scarfs, and furnishing goods. 250
 b Embroidery, lingerie. 252
 All articles contained in this exhibit are of H. C. & Co.'s own manufacture, and at their extensive establishment, Nos. 14 s and 14 1/2 Chestnut street, above Broad street, Philadelphia, will be found goods of a similar character, in great variety.
- 920 Pettingell & Sawyer, East Cambridge, Mass.—F 76.
 a Waterproof oil clothes. 250
 b Waterproof hats. 251
- 920a Brady, Edward, Philadelphia, Pa.—U 63.
 a Collars for men's wear. 250
 b Buttons. 254
- 921 Carney, Bernard L., Philadelphia, Pa.—Silk, beaver, and felt hats. B 70. 251
- 922 Jacoby, Theo., Philadelphia, Pa.—Hats, bonnets with domestic trimmings. F 70. 251
- 923 Hegle, Fortuné, New York, N. Y.—Material for kid glove manufacturing, and kid gloves. B 68. 251
- 924 Stetson, John B., & Co., Philadelphia, Pa.—Soft and stiff felt hats in various stages of manufacture. B 68. 251
- 925 Walton, Maison, New York, N. Y.—Bonnets and round hats. F 71. 251
- 926 Littleton Saranac Buck Glove Co., Boston, Mass.—Grain tanned gloves. B 69. 251
- 927 New York Catholic Protectory, New York, N. Y.—Shoes. V 53. 217
- 928 Brown, Emma, New York, N. Y.—Straw round hats and feathers. B 70. 251
- 929 Nonnenberger, Christian, Philadelphia, Pa.—Hatters' blocks and tools. B 69. 251
- 930 Fenton, J. H., & Bro., Philadelphia, Pa.—Gentlemen's dress, silk, soft and stiff felt, and other hats. B 70. 251
- 931 Pierson & Herman, Newark, N. J.—Hat blocks and flanges, hatters' tools. B 70. 251
- 932 Yates, Wharton, & Co., Newark, N. J.—Fur felt hats. B 70. 251
- 933 Field, J. C. & J. F., Philadelphia, Pa.—Gloves. B 69. 251
- 934 Hays, Daniel, Gloversville, N. Y.—Buckskin and peccary skin gloves, gauntlets, and mittens. B 71. 251
- 934a Blaylock & Co., Philadelphia, Pa.—B 71.
 a Straw hats; hats. 251
 b Furs, robes, fur caps, turbans, gloves, etc. 256
- 935 Jeannisson, Lewis, & Son, Johnstown, N. Y.—Gloves. B 71. 251
- 937 Haverhill Hat Co., Haverhill, Mass.—Wool hats. B 69. 251
- 938 Solmans, Alden, South Norwalk, Conn.—Felt hats. B 71. 251
- 939 Morris, E., & Co., Philadelphia, Pa.—Silk, soft, and stiff hats. B 67. 251
- 940 Amidon's Son, T. H., New York, N. Y.—Hats and caps. B 70. 251
- 941 Dunlap & Co., Hatters, 174 Fifth avenue and 589 Broadway, New York, N. Y.; manufacture and wholesale department, 16 Mercer street, New York, N. Y.—Gentlemen's silk, felt, straw and opera hats; ladies' riding hats. B 70. 251
- 942 Kennedy, Thos., & Bro., Philadelphia, Pa.—Wax figure in bridal costume; trimmed bonnets and hats. F 72. 251
- 943 Schiller, Jos., & Co., St. Louis, Mo.—Hats for gentlemen's wear. B 69. 251
- 945 Hutchinson, John C., Johnstown, N. Y.—Men's lined dogskin, calfskin, and lambskin gloves and gauntlets. B 71. 251
- 946 Northrup, W. S. & M. S., & Co., Johnstown, N. Y.—Fine lamb, real calf, and buckskin castor unlined gloves. Most glove dealers know the reliability of gloves made by this firm. B 71. 251
- 947 Colwell, F. E., & Co., Chicago, Ill.—Husking gloves. P 51. 251
- 948 Miller, Geo. F., Jacksonville, Fla.—B 74.
 a Palmetto hats. 251
 b Florida curiosities. 254
- 949 Bancroft, J. S., & Co., New York, N. Y.—Hats and caps, boys' and children's hats. B 72. 251
- 950 Kursheedt & Co., 190 to 194 South Fifth avenue, New York, N. Y.—Standard manufacturers—Embroideries, puffs, platings, and flutings, made on patented machines; ladies' collars and cuffs, ties, collarettes, lock-stitch all-over tuckings, and tucked frockings. F 69. 252
- 950a Beatty & Thorne, New York, N. Y.—Hat, badge, and ornamental printing in gold, silver, etc. P 78. 252
- 951 Bentley, Jeff. O., Philadelphia, Pa.—Embroidered, braided, and stamped goods; indelible marking, designs, stamps. F 72. 252
- 951a Roberts & Hevell, Newark, N. J.—T 65.
 a Dress, hat, and shoe trimmings. 252
 b Metal fancy goods, notions. 254
 c Trunk and bag trimmings. 255
- 952 Barrett, Jos. W., Philadelphia, Pa.—Embroidery and braiding designs, hand worked and printed. F 72. 252
- 953 Thomas, Joel, Philadelphia, Pa.—Ruches, ladies' and infants' caps, ruffings, and collarettes. F 71. 252
- 954 Clickerman, L. M., Philadelphia, Pa.—Embroidery on linen cambric. F 68. 252
- 955 Palmer & Kendall, Middletown, Conn.—Mosquito net canopies with attachments, machine-tentered wide fabrics, mosquito nettings, cords, and window lines. F 77. 252
- 956 Bedichmer, Isaac, Philadelphia, Pa.—Masonic marks, society jewels, pins, and emblems in gold and silver. N 43. 253
- 956a Barrows, H. F., & Co., New York, N. Y.—Plated jewelry. P 43. 253
- 957 Muhr's, H., Sons, Philadelphia, Pa.—Gold finger rings. P 43. 253
- 957a Celluloid Novelty Co., New York, N. Y.—Celluloid jewelry. N 43. 253
- 958 Bailey & Co., Philadelphia, Pa.—Jewelry. N 43. 252

Jewelry, Toys, Fancy Articles.

- 959 Simons, Opdyke, & Co., Philadelphia, Pa.—Gold chains, gold head canes, thimbles, gold and pearl jewelry. P 43. 253
- 960 Caldwell, J. E., & Co., Philadelphia, Pa.—Jewelry and artistic manufactures in the precious metals, for use and decoration. N 41. 253
- 961 Vulcanite Jewelry Co., New York, N. Y.—Vulcanite and jet, and combination vulcanite and jet jewelry. P 43. 253
- 962 Goggin, Jas., New York, N. Y.—Suites of jewelry, and jewel cases of shell, jet, and bog oak. P 50. 253
- 963 Neher, Chas., Philadelphia, Pa.—Hair jewelry. P 43. 253
- 964 Starr & Marcus, New York, N. Y.—Diamonds, pearls, precious stones, rich jewels, and stone cameos. N 41. 253
- 965 Morgan & Headly, Philadelphia, Pa.—Gold spectacles and chains, fine jewelry. N 42. 253
- 966 Cottier, C., & Son, N. Y.—Imitation of precious stones and fancy cut stones. P 44. 253
- 967 Tillinghast, Mason & Co., Providence, R. I.—Imitation diamond jewelry. N 43. 253
- 968 Richards, J. J. & J. M., New York, N. Y.—Sleeve and collar buttons, studs, crosses, pins, and eardrops. P 43. 253
- 969 Haas, Jas. A., & Co., Philadelphia, Pa.—Jewelry; masonic and other emblems. N 43. 253
- 970 Hamilton P. Hunt, Providence, R. I.—Plated chains and buckle bracelets. P 43. 253
- 971 Kipling's, R., Sons, New York, N. Y.—Precious and imitation stones for jewelry. N 43. 253
- 972 Tiffany & Co., New York, N. Y.—N 41. 253
a Jewelry, precious stones. 253
b Gilt goods. 254
- 973 Robbins, Clark & Biddle, Philadelphia, Pa.—N 43. 253
a Jewelry, diamonds. 253
b Bronzes, fancy goods. 254
- 973a Sand, M., New York, N. Y.—Wax flowers. F 71. 254
- 974 Miller, Thos., New York, N. Y.—Silk umbrellas. B 70. 254
- 975 Pope Manufacturing Co., Boston, Mass.—Rifle air pistol for target shooting. H 71. 254
- 975a Oakville Company, Waterbury, Conn.—Shawl, bankers', and mixed pins; toilet pin rolls. H 68. 254
- 975b Galena Oil Works (limited), Franklin, Pa.—Silver card baskets and cards. P 47. 254
- 976 Wallace & Keller, Philadelphia, Pa.—Walking canes, bell earrings, and fancy articles. B 72. 254
- 976a Pratt, D. G., Cambridgeport, Mass.—Wood and ivory turned goods. N 57. 254
- 977 Birge & Berg, Philadelphia, Pa.—Artificial flowers; picture of lion, made of flowers. F 72. 254
- 978 Giendenning & Truitt, Philadelphia, Pa.—Whips. B 71. 254
- 978a New York Button Co., New York, N. Y.—Silk, velvet, metal, and other buttons. B 71. 254
- 979 Lacmann, J., & Sons, Philadelphia, Pa.—Doll bodies. F 72. 254
- 979a Weintraub, Paul, Philadelphia, Pa.—Fancy articles of olive wood from Jerusalem. T 54. 254
- 980 Pilling, George P., Philadelphia, Pa.—Gold, silver, and plated masonic, odd fellows, and society jewels, marks, emblems, and other small silver wares. N 52. 254
- 981 Baeder, Adamson, & Co., Philadelphia, Pa.—Cowhide whips. N 68. 254
- 981a Bene, Creighton, & Co., New York, N. Y.—Feathers. H 76. 254
- 982 Wilson, John, Philadelphia, Pa.—Carved walking canes. B 69. 254
- 983 Hirsh & Brother, Philadelphia, Pa.—Umbrellas, parasols, and materials. B 72. 254
- 983a Bacon, George W., Philadelphia, Pa.—Artistic transfers in spermaceti. N 55. 254
- 984 Galbraith, Alex., Philadelphia, Pa.—Wax flowers and materials. F 71. 254
- 984a Dudley, Dana, Philadelphia, Pa.—Toy gyroscopes. P 71. 254
- 985 Watson, Brock, Philadelphia, Pa.—Fancy articles carved from nuts and fruit stones; wood relics. H 69. 254
- 986 Potter, W. K., Providence, R. I.—Tortoise shell goods, combs, jewelry, etc. P 43. 254
- 986a Shoenhof, J., & Co., New York, N. Y.—Felt skirts. F 71. 254
- 987 Nickle, Robt., Rochester, N. Y.—Magical apparatus and toys. H 78. 254
- 987a Goodwin, W. C., New Haven, Conn.—Hot-air toys, guns, games, novelties, recording bank. N 71. 254
- 988 Bloodgood, Miss A. De Etta, New York, N. Y.—Sheet wax, wax flowers, leaves, shells, fruit, etc.; illuminated and rustic crosses. P 42. 254
- 988a Noyes, W. F., Newburyport, Mass.—Combs. F 71. 254
- 989 Chambers & Co., Philadelphia, Pa.—Umbrellas, parasols, and sun umbrellas. B 72. 254
- 989a Leighton, Charles, New Orleans, La.—Sleeve buttons mounted with Long Branch pebbles. F 71. 254
- 990 Johnson, E. S., New York, N. Y.—Tooth picks and ear spoons. N 43. 254
- 990a Jackson, Samuel C., New York, N. Y.—Silverware and jewelry trays and cases, fancy wood boxes. N 43. 254
- 992 Wahl, Emil, Philadelphia, Pa.—Fancy bone work, dominoes, chessmen, crochet needles, buttons, jewelry, etc. N 43. 254
- 993 India Rubber Comb Co., New York, N. Y.—Hardware rubber combs, syringes, drinking flasks; surgical, telegraphic, and photographic goods, etc. Manufacturers of hard rubber combs, syringes, drinking flasks, whip sockets, inkstands, oilers, thimbles, doll-heads, martingale rings, tumblers, rulers, funnels, scoops, dice cups, soap trays,

Ornaments, Toys, Fancy Articles.

- castor rolls, napkin rings, whip handles, salad spoons and forks, gas faucets, mustard spoons; photographic, telegraphic, electrical, and surgical goods, and all kinds of special goods; sheet, rod, and tubing. B 67. 254
- 994 Leiner, Moritz, New York, N. Y.—Ear cleaners, filtering racks, sponge baskets, bath and bottle brushes, probangs. P 65. 254
- 995 Aiken, Lambert, & Co., New York, N. Y.—Toothpicks. N 43. 254
- 996 Koch, Sons, & Co., New York, N. Y.—Albums and backgammon boards. P 76. 254
- 997 Birch, John S., New York, N. Y.—Watch key that will wind any watch. P 43. 254
- 998 Ellis, Knapp, & Co., New York, N. Y.—Umbrellas and parasols. B 70. 254
- 998a Feust & Rice, New York, N. Y.—Toys, jardiniers, and parlor ornaments. P 51. 254
- 999 Drown, W. A., & Co., Philadelphia, Pa.—Umbrellas and parasols. B 69. 254
- 999a Buffalo Decorating Co., Buffalo, N. Y.—Artificial ivy and autumn leaves. P 62. 254
- 1000 Hopkins & Robinson Manufacturing Co., Akron, O.—Smoking pipes. T 44. 254
- 1000a Smithers, Mrs. G. H., New York, N. Y.—Wax flowers and figures; sheet wax. F 70. 254
- 1001 Orange Judd Co., New York, N. Y.—Crandall's building blocks. T 73. 254
- 1003 Dickinson, Mrs. C. J., Chicago, Ill.—Wax flowers, leaves, fruit, ferns, etc. P 42. 254
- 1004 Tobin, Joseph F., No. 82 Duane street, New York, N. Y.—Whalebone goods. Manufacturer of dress, corset, whip, cane, probe, busks, brush, ribbon, round and half-round bone. F 72. 254
- 1005 Mabie, Todd, & Bard, New York, N. Y.—Tooth-picks. N 43. 254
- 1007 Riley & Lynch, Newark, N. J.—Bag and umbrella trimmings, military metal goods, masonic ornaments, etc. H 67. 254
- 1008 Celluloid Manufacturing Co., Newark, N. J.—Toilet brushes, etc., made from celluloid. N 43. 254
- 1009 American Mechanical Toy Co., N. Y.—Mechanical toys. F 70. 254
- 1010 Leonhard, Theo., Paterson, N. J.—Pure white beeswax bleached by sun, wax tapers or gaslighters, sheet wax and gilded brass moulds for wax flowers. N 56. 254
- 1011 Bradley & Hubbard Manufacturing Co., West Meriden, Conn.—Bronzes, call bells. N 47. 254
- 1013 Carlisle, Henry, & Son, Philadelphia, Pa.—Tortoise shell and horn combs, jewelry sets, and fancy articles. N 52. 254
- 1014 Althof, Bergmann, & Co., New York, N. Y.—Tin and mechanical toys. F 76. 254
- 1016 Bickel, August, & Son, Philadelphia, Pa.—Canes. B 71. 254
- 1017 Heister & Gans, New York, N. Y.—Automatic umbrellas and parasols. B 69. 254
- 1018 Kaldenberg, Fred. Julius, New York, N. Y.—Genuine meerschaum pipes and cigar holders, amber goods. P 66. 254
- 1019 Holland, John, Cincinnati, O.—Toothpicks. N 43. 254
- 1020 Adams, J. S., & Co., Providence, R. I.—Tortoise shell jewelry and combs. N 42. 254
- 1021 Demuth, Wm., & Co., New York, N. Y.—Pipes and smokers' articles. P 69. 254
- 1022 Wagan, R. M., Mount Lebanon, N. Y.—Fancy articles made by the Shalons. P 52. 254
- 1023 Stehr, Carl, New York, N. Y.—Meerschaum and amber goods. B 72. 254
- 1024 Harvey & Ford, Philadelphia, Pa.—Canes, umbrella and whip handles; pipes, billiard balls; pearl, horn, and ivory work. B 70. 254
- 1025 Waterbury Button Co., Waterbury, Conn.—Army, navy, railroad, police, state, livery, and cloth buttons; ladies' belt buckles, medals, and badges. B 76. 254
- 1027 Armstrong, F., Bridgeport, Conn.—Duplex ventilated garters and armlets. F 72. 254
- 1028 Field, A., & Sons, Taunton, Mass.—Buttons and eyelets. P 68. 254
- 1029 Lewy, F., New York, N. Y.—Kid glove safe. E 78. 254
- 1030 Matthias, Mrs. C. E., Philadelphia, Pa.—Umbrellas and parasols. F 70. 254
- 1031 Mitchell, Vance, & Co., New York, N. Y.—Bronzes. N 49. 254
- 1031a Griffin, A. B., Ravenna, O.—Box and pyramid made of the woods of the world, containing 9865 pieces. P 49. 254
- 1032 Independent Comb Co., Wappinger's Falls, N. Y.—Ladies' horn and rubber combs, dressing combs, pipe stems, and bits. B 73. 254
- 1033 Barnhurst & Robinson, Philadelphia, Pa.—Umbrella and parasol stretchers. B 70. 254
- 1034 Grottenhaler, V., Philadelphia, Pa.—Block for wood engravers, wooden smoking pipes. B 70. 254
- 1035 Ives, Blakeslee, & Co., Bridgeport, Conn.—Mechanical toys and novelties. F 72. 254
- 1036 Mains Manufacturing Co., New York, N. Y.—Dice box. N 65. 254
- 1037 Nax, Kuhn, & Silberman, Philadelphia, Pa.—Tobacco pipes; umbrella, parasol handles, cigar tubes, etc. B 75. 254
- 1038 National Button Co., Easthampton, Mass.—Cloth-covered and vegetable-ivory buttons, in great variety. Williston, Knight & Co., selling agents, Nos. 74 and 76 Worth street, New York, who sell by the case or package only. B 76. 254

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- 1039 Spaulding, D. S., Mansfield, Mass.—Tortoise shell jewelry, back combs, and fancy goods. N 43. 254
- 1040 Sevey, J. A., Boston, Mass.—Articles of whalebone, for whips, canes, corsets, dresses, etc. F 71. 254
- 1041 Eureka Manufacturing Co., Boston, Mass.—Air pistols. H 71. 254
- 1042 Joslin, Palmer, & William, New York, N. Y.—Horn and rubber goods, fancy back combs, and jewelry. N 43. 254
- 1043 Hildreth, Milo, & Co., Northboro', Mass.—Horn and tortoise shell combs and jewelry. N 43. 254
- 1044 Mahn, L. H., Jamaica Plains, Mass.—Base balls. F 71. 254
- 1047 Porter Brothers & Co., New York, N. Y.—Buttons and presses for attaching the same. H 71. 254
- 1047a Holland, J. C., New York, N. Y.—Needles. F 71. 254
- 1048 Harris, S., & Sons Manufacturing Co., Clinton, Mass.—Dressing and fancy combs, imitation jet and shell chains. F 71. 254
- 1049 Wild, G. L., & Brother, Washington, D. C.—Musical dancing toy attachment for pianos. N 64. 254
- 1050 Montoux, Emile W., New York, N. Y.—Hair pictures and devices for breastpins. P 52. 254
- 1051 Grote, F., & Co., New York, N. Y.—Carved and turned ivory; pearl and shell goods. B 71. 254
- 1051a Conrad, Wm. C., Middletown, Pa.—Cane. T 61. 254
- 1052 Ansley, Fred. W., St. Augustine, Fla.—Jewelry made from native Florida material. H 68. 254
- 1053 Fewler Fly Fan Co., Philadelphia, Pa.—Fly fan moved by clockwork. N 54. 254
- 1054 Platt Bros. & Co., Waterbury, Conn.—Buttons. H 71. 254
- 1055 Cheshire Manufacturing Co., West Cheshire, Conn.—Buttons. H 71. 254
- 1056 Godfrey, C. J., & Son, Naugatuck, Conn.—Thimbles. H 71. 254
- 1057 Comstock Dickinson Ivory Co., Center Brook, Conn.—Ivory fine combs. H 71. 254
- 1058 Blake & Johnson, Waterbury, Conn.—Satin finish hair pins. H 71. 254
- 1059 Ives, Blakeslee, & Co., Bridgeport, Conn.—Silk covered ventilated metallic garters. H 71. 254
- 1059a Ladd, S. J., Providence, R. I.—Gold thimbles. N 43. 254
- 1060 Peacock, H. H., Philadelphia, Pa.—Fancy cases in morocco, velvet, and marqueterie, for jewelry, etc.; physicians' cases. P 63. 255
- 1060a Turner, Andrews & Co., Philadelphia, Pa.—Pocket and bill books, letter cases, and fancy leather articles. F 71. 255
- 1061 Rumpp, Chas., Philadelphia, Pa.—Fancy leather goods, dressing case, work boxes, pocketbooks, satchels, etc. H 69. 255
- 1061a Langfeld, J., & Sons, Philadelphia, Pa.—Pocketbooks, satchels, and fancy leather articles. F 70. 255
- 1062 Kolb, G. F., & Son, Philadelphia, Pa.—Cases for jewelry and silverware. B 71. 255
- 1062a Arms Manufacturing Co., Northampton, Mass.—Pocketbooks, photograph cases, chess boards, etc. B 78. 255
- 1063 Rumpp C. F., 116 & 118 North Fourth St., Philadelphia, Pa.—Fancy leather goods, pocketbooks, cigar and match cases, bankers' cases, dressing cases, writing desks, satchels, traveling bags, etc. Any article exhibited is kept in store, and any similar goods will be made to order at short notice. B 68. 255
- 1063a Spitzer, George W., 33 Maiden Lane, New York, N. Y.—Fans, jewelry cases, and fancy leather goods. Manufacturer of leather fancy goods. Our specialties are jewelry cases and fans. These are the only fans of the kind made in this country. B 71. 255
- 1064 Parkhurst & Gridley, Newark, N. J.—Shawl and book strap. P 68. 255
- 1065 Likly, McDonald, & Rockett, Cleveland, Ohio.—Fancy leather work, gun case, etc. B 70. 255
- 1066 Stambach, John A., & Co., Philadelphia, Pa.—Ladies' and gentlemen's furs and robes. B 68. 256
- 1067 Mawson, Ed. S., & Sons, Philadelphia, Pa.—Seal sacques, muffs, caps, gloves; seal, sable, and mink skins, etc. B 68. 256
- 1068 Fishblatt, Lewis, Philadelphia, Pa.—Ladies' furs and carriage robes. B 70. 256
- 1069 Mahler, M., New York, N. Y.—Furs. B 67. 256
- 1070 Reisky, N. C., Philadelphia, Pa.—Ladies' furs, gentlemen's driving goods, sleigh robes, Indian painted buffalo robes. B 69 and 71. 256
- 1071 Boosa, F., & Bro., 449 Broadway, New York, N. Y.—Furs, sacques, coats, muffs, boas, caps, robes, gloves, fur trimmings, and skins of all kinds. B 69. 256
- 1075 Kaehler, Otto, Philadelphia, Pa.—Stuffed animals, raw and dressed skins, fur robes, fancy furs, etc. B 68. 256
- 1076 Duryee & Hallett, Rahway, N. J.—Dressed and dyed furs. H 68. 257
- 1077 Burnett, W. H. & R., Newark, N. J.—Furs, fur cloaks, and fur-lined mantles. B 68. 257

Paper, Blank Books, and Stationery.

- 1078 Dixon Crucible Co., Jersey City, N. J.—Pencils of graphite. P 72. 256
- 1078a Amberg, William A., New York, N. Y.—File and binder. P 77. 258
- 1079 McGill, Geo. W., New York, N. Y.—McGill's patent fasteners for binding papers of all descriptions; sampling for woolen, dry, and fancy goods, and for all descriptions of light binding; McGill's patent suspending rings, and braces for hanging cards, calendars, etc.; one hundred different patterns of fasteners and rings; McGill's patent letter clips, punches, presses, copying press, water cups, etc. Factories at Waterbury, Conn.; warehouses, at 49 Chambers street, New York, and 18 Federal street, Boston. P 73. 258

Stationery.

- 1079a Smith, Eldridge J., Philadelphia, Pa.—Bill holder, envelope, and book clasp. H 69. 258
- 1080 Hoskins, W. H., Philadelphia, Pa.—Paper, envelopes, designing, engraving, printing, and lithographing. P 76. 258
- 1080a Chamberlin, Whitmore, & Co., New York, N. Y.—Stationery. P 74. 258
- 1081 Woodruff, E. W., Washington, D. C.—File holders, for filing business and official papers, compactly and conveniently for reference. Adopted by the United States Government. P 49. 258
- 1082 Tiffany & Co., New York, N. Y.—Stationery. N 41. 258
- 1082a Pottin Register Manufacturing Co., Philadelphia, Pa.—Bank check. P 57. 258
- 1083 Goldsborough, John, Philadelphia, Pa.—Ribbon machine and hand stamps, perforating and canceling stamps. P 77. 258
- 1084 American Lead Pencil Co., New York, N. Y.—Lead pencils, materials, and process of manufacture. P 74. 258
- 1085 Fairchild, Leroy W., & Co., New York, N. Y.—Gold pens, pencil and pen cases, toothpicks and desk holders of gold and silver, etc. Awarded highest premium at Paris, 1867; Vienna, 1873; and gold and silver medals from other fairs wherever in competition. N 43. 258
- 1086 Faber, Eberhard, New York, N. Y.—Lead pencils, penholders, rubber goods, and stationers' articles. P 73. 258
- 1087 Cooke, G. K., & Co., New York, N. Y.—Revolving hand stamps, seal presses, rubber stereotypes, check protectors, combined pad and rack. P 77. 258
- 1088 Johnson, E. S., New York, N. Y.—Gold pens, pencils, and cases. N 43. 258
- 1089 Muller's, Nicholas, Sons, New York, N. Y.—Bronze stationery ware, inkstands. P 76. 258
- 1090 Janentzky & Co., Philadelphia, Pa.—Artists' materials, oil colors, water colors, paint boxes, artists' canvas, adjustable drawing table, artists' brush and color stand, sketching easels, and other articles appertaining to the fine arts, all of our own manufacture. P 77. 258
- 1091 Bergner, Theo., Philadelphia, Pa.—Drawing boards, parallel rulers, and section liners for draughtsmen's use. P 76. 258
- 1092 Hawkes, Geo. F., New York, N. Y.—Gold pens, gold, silver, pearl, and rubber pencils; fountain pen. N 43. 258
- 1093 Lipman, Hymen L., Philadelphia, Pa.—Eyelet machines, combining punch and riveter. P 74. 258
- 1094 Brower Bros., New York, N. Y.—Inkstands, paper weights, sponge cups, letter files, etc. P 74. 258
- 1095 Aiken, Lambert, & Co., 12 Maiden Lane, New York, N. Y.—Choice gold pens, penholders, cases. All goods sold guaranteed of same excellency as those on exhibition. N 43. 258
- 1096 Buck, T. S., & Co., Davenport, Ia.—Rubber type forms, rubber dating stamp. P 77. 258
- 1097 Stiles, Mrs. E. W., Philadelphia, Pa.—Book paper-file, revolving inkstand. P 30. 258
- 1098 Youngs, Wm. J., & Sons, Philadelphia, Pa.—Hand stamp. N 57. 258
- 1099 Stoddard, Richard T., Boston, Mass.—Book supporter. P 74. 258
- 1100 Young, W. A., Jacksonville, Fla.—Pencil sharpeners. H 68. 258
- 1101 Bender & Phillips, Hohokus N. J.—Sheet wax. N 56. 258
- 1102 Mabie, Todd, & Bard, New York, N. Y.—Gold pens, cases, pencils, holders. N 43. 258
- 1103 Hall, P. W., Austin, Texas.—Postage stamp and ticket holders. N 68. 258
- 1104 Dreks, Louis, Philadelphia, Pa.—Portfolio and stationery. Specimens of steel and copper plate engraving, die sinking, printing, illuminating and designing. All work exhibited executed in our establishment. P 74. 258
- 1105 Parkhurst & Gridley, Newark, N. J.—Stationers' goods. P 68. 258
- 1106 Foley, John, New York, N. Y.—Gold pens, pencils, and penholders. N 43. 258
- 1107 Chase, John S., Union Paste & Sizing Co., 200 Mulberry street, New York, N. Y.—Preserved flour paste, for bookbinders' and general use; Eureka perfumed paste, for office, library, and household. P 77. 258
- 1108 Mason & Co., Philadelphia, Pa.—Engraving, fine stationery, illuminating, stamping, and copper plate printing. P 73. 258
- 1109 Somers, D. M., Greenport, Brooklyn, N. Y.—Penholders. P 72. 258
- 1110 Holland, John, Cincinnati, O.—Gold pens, pencil cases, penholders. N 43. 258
- 1111 United States Soapstone Manufacturing Co., Cincinnati, O.—Soapstone slate pencils, crayons for blackboard or metals, tailors' markers, hair crimpers and curlers, boot powder, shoemakers' blocks, foundry facings; manufacturers of soapstone goods of any description. P 77. 258
- 1112 Hart, Bliven, & Mead Manufacturing Co., New York, N. Y.—Stationery for the desk, paper files, clips, etc. P 70. 258
- 1113 James, Samuel, Philadelphia, Pa.—Artists' rotary color and brush-stand. P 77. 258
- 1114 Chamberlin, Whitmore, & Co., New York, N. Y.—Stationery. P 74. 258
- 1117 Walker, Tucker, & Co., Philadelphia, Pa.—Rubber hand stamps. P 74. 258
- 1118 Esterbrook Steel Pen Co., Camden, N. J.—Pens and penholders. P 72. 258
- 1119 Eagle Pencil Co., New York, N. Y.—Lead and mechanical pencils, copying crayons, penholders, stationery, wood and brass articles. P 76. 258
- 1121 Rowland, Joseph S. C., Philadelphia, Pa.—Canceling ink-pad. T 47. 258

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

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- 1122 Edsall, D. A., New York, N. Y.—Rubber hand stamps, stereotypes, folding rack pads. P 77. 258
- 1123 Morton, James, New York, N. Y.—Gold pens, gold, celluloid, and pearl pencils and penholders. N 43. 258
- 1124 Donovan, J. W., Detroit, Mich.—Record file covers, classified directory. P 58. 258
- 1125 Koch, Sons, & Co., New York, N. Y.—P 76.
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 b Blank books. 261
- 1126 Moss & Co., Philadelphia, Pa.—P 77.
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- 1127 Root, R. C., Anthony, & Co., New York, N. Y.—P 74.
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 b Account books, lithographic work. 261
- 1128 Cohen, Chas. J., 26 South Fifth street, Philadelphia, Pa.—P 74.
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 b Envelopes, all sizes and qualities. 259
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- 1129 Byron, Weston, Dalton, Mass.—Ledger and record paper. Linen, strong, double-sized paper for books, where great strength and long use are required. P 75. 259
- 1129a Stratford, Hoe, & Co., Jersey City, N. J.—P 74.
 a Tissue paper. 259
 b Press boards. 262
- 1130 Owen Paper Co., Housatonic, Mass.—First-class linen ledger papers, bond and thin linen papers; tinted wedding royals and folios, plain and patent finished; bristol boards and staple writing papers of all kinds. P 73. 259
- 1130a Brown, L. L., Paper Co., South Adams, Mass.—Ledger and flat papers. P 74. 259
- 1131 Southworth Co., Mittlemeque, Mass.—Writing papers. P 75. 259
- 1132 Mount Holly Paper Co., Mount Holly Springs, Pa.—Writing papers. P 73. 259
- 1133 Whiting Paper Co., Holyoke, Mass.—Fine papers. P 77. 259
- 1134 Crescent Mills, Springfield, Mass.—Writing papers. P 74. 259
- 1135 Holyoke Paper Co., Holyoke, Mass.—Writing papers. P 74. 259
- 1136 Carson & Brown Co., Dalton, Mass.—Writing paper. P 74. 259
- 1137 Parsons Paper Co., Holyoke, Mass.—Writing paper. Manufacturers of white and tinted writing and envelope papers, of every description. P 74. 259
- 1138 Crane & Co., Dalton, Mass.—Bond, bank-note, parchment, letter, and note paper. P 74. 259
- 1139 Parker, Joseph, Son, & Co., New Haven, Conn.—Treasury and commercial blotting paper. Treasury blotting paper is well known for its durability and great absorbent quality, cleanliness in its use; grows soft and pliable by exposure, and never hardens on the desk. It will absorb more ink than the same thickness of papers of this class manufactured in the ordinary manner. J. G. Ditman & Co., Philadelphia, agents for Centennial. P 74. 259
- 1140 Campbell, Hall, & Co., New York, N. Y.—Safety paper, for protection from erasures. P 74. 259
- 1142 Tileston & Hollingsworth, Boston, Mass.—Steel plate, chromo, and wood-cut paper. P 77. 259
- 1143 Crane Brothers, Westfield, Mass.—Bank ledger, record, and linen fabric papers. P 74. 259
- 1144 Hurlbut Paper Co., South Lee, Mass.—Writing and blank book papers. P 75. 259
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 a Writing, envelope, blotting, plate, chromo, book, and printing papers. 259
 b Colored papers. 264
- 1146 Megargee Bros., Philadelphia, Pa.—P 74.
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 b Colored papers. 264
- 1147 Francis & Loutrel, New York, N. Y.—P 74.
 a Manifold writers, by which letters and copies are written at the same time. 259
 b Bank ledger's spring book, patented April 30, 1870, opens freely and extra strong. Diaries published annually; safety checks, sure protection against raising, or fraud. 261
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- 1148 Haldeman Paper Co., Lockland, Ohio.—P 77.
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 b Building and roofing paper. 263
- 1149 Jessup & Moore, Philadelphia, Pa.—Copperplate, lithograph, and book papers, news paper. P 74. 260
- 1150 Ivanhoe Manufacturing Co., Paterson, N. J.—Book papers, flat writing, Butler's "French folios," also in four colors; American silk copying paper, cheap colored laid writing. Specialty—animal sized writing paper in rolls. Roll one-half mile long—one continuous sheet. P 74. 260
- 1153 Howlett, Onderdonk, & Co., Philadelphia, Pa.—Machine-made paper bags. P 73. 260
- 1155 Tangeman, Geo. P., Hamilton, Ohio.—P 77.
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 b Roofing felt. 263
- 1156 McNeil, Irving, & Rich, Elwood, N. J.—P 74.
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- 1157 Mann, Wm., Philadelphia, Pa.—Blank books for banks, parchment copying books. P 75. 261
- 1157a Mets & Willse, Dubuque, Ia.—Specimens of bookbinding. P 77. 261
- 1158 Altemus & Co., Philadelphia, Pa.—Photograph albums, scrap books, etc. T 76. 262

Stationery.

- 1159 Murphy's, W. F., Sons, Philadelphia, Pa.—Blank books, made to order for actual use. P 77. 261
- 1159a Lippincott, J. B., & Co., Philadelphia, Pa.—Blank books of their own manufacture. T 72. 261
- 1160 Thomas, Chas. F., Wilmington, Del.—Index for public records, and mercantile accounts. P 76. 261
- 1161 Kohler, Ignatius, Philadelphia, Pa.—Samples of bookbinding; samples of hand-finished ornamental, artistic, tool-worked bibles and large royal photograph albums, holding from 600 to 1000 pictures. (Hand-finished by Ig. Kohler himself.) T 74. 261
- 1161a Holman, A. J., & Co., Philadelphia, Pa.—Bookbinding and photograph albums. T 74. 261
- 1162 Burlock, Saml. D., & Co., Philadelphia, Pa.—Bookbindings. T 73. 261
- 1163 Walker, Evans, & Cogswell, Charleston, S. C.—Blank books, law blank case. P 74. 261
- 1163a Robinson, Savage & Co., Cleveland, O.—Russia bound register books. (*Ohio State Building*.) 261
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- 1165 Sanford & Co., Cleveland, O.—Full Russia bank books. P 77. 261
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- 1167 Lange, Little, & Co., New York, N. Y.—Wood cut, railroad, and job printing. T 78. 261
- 1168 American Tract Society, New York, N. Y.—Bookbinding. T 76. 261
- 1169 Oldach & Mergenthaler, Philadelphia, Pa.—Bookbinders' work. T 75. 261
- 1170 Houghton, H. O., & Co., Riverside Press, Cambridge, Mass., Hurd & Houghton, New York.—Specimens of their publications, in fine library and law bindings, among them the "Massachusetts Reports," in law calf; the "Butterflies of North America," in crushed levant and vellum; "Smith's Unabridged Bible Dictionary," and "Knight's American Mechanical Dictionary," in grained levant; the special feature being a copy of "Webster's Unabridged Dictionary," manufactured at the Riverside Press, in illuminated vellum. T 76, on the *pavilion of the American Book Trade Association*. 261
- 1171 Reed, A., & Co., Philadelphia, Pa.—Ornamental bookbinding. T 74. 261
- 1171a New York Catholic Protectory, New York, N. Y.—Printing. V 53. 261
- 1172 Lindsay & Blakiston, Philadelphia, Pa.—Specimens of binding. T 73. 261
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- 1180 Osborn, Bennet, Newark, N. J.—Paper boxes. P 73. 261
- 1181 Dennison & Brown, Portland, Me.—Wood pulp and products, paper boxes, etc. P 77. 261
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- 1183 Crompton, John, & Co., Philadelphia, Pa.—Jewelers', druggists', and perfumers' boxes. P 74. 261
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- 1193 Grice, Jas., & Sons, Downingtown, Pa.—Wrappers for paper manufacturers. P 77. 263
- 1194 Gordon, A. Dunlop, Philadelphia, Pa.—Building and manila concrete felts. P 74. 263
- 1195 Case Brothers, South Manchester, Conn.—Paper boards. P 74. 263



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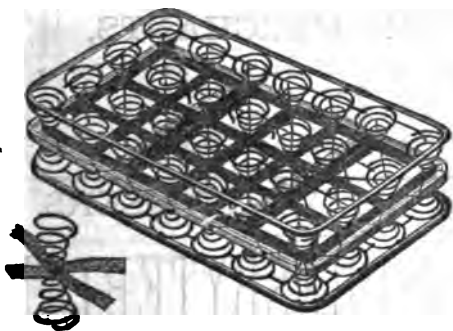
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- 1197 Van Skelline, Theo., Brooklyn, N. Y.—Motto papers and motto flowers. P 74. 264
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- 1198 Dejonge, Louis, & Co., New York, N. Y.—Fancy colored, glazed, plated, enameled, varnished, embossed, and printed papers. P 74. 264
- 1199 Beck, Fr., & Co., 206 & 208 West Twenty-ninth street, New York, N. Y.—Wall papers. The goods exhibited by this firm are of two classes: one made by hand-printing alone, the other by machinery alone. In the former a great variety of colors can be used, matching furniture coverings and draperies, if desired, and, indeed, the appearance of watered silks, or satins, or rich embroidered stuffs, can be so closely imitated that the printed paper can scarcely be distinguished from the genuine fabric. The goods made by machinery are commended for skill in workmanship, for graceful drawing in pattern, for a close resemblance to hand-printed papers, and for cheapness in price. P 76. 264
- 1200 Howell & Brothers, Philadelphia, Pa.—Paper hangings, borders, fireboard prints, and window papers. P 76. 264
- 1200a Spurr, Chas. W., Boston, Mass.—Wood hangings and marquetry. P 73. 264
- 1201 Howell & Bourke, Philadelphia, Pa.—Paper hangings and fresco decorations. P 59. 264
- 1202 Westenberg, Jefferson, & Co., New York, N. Y.—Decorations and embossed gold papers. P 76. 264
- 1203 Nagle, Cook, & Ewing, Philadelphia, Pa.—Decorative paper hanging. T 55. 264
- Military and Nava Armaments, Ordnance, Firearms, and Hunting Apparatus.**
- 1204 Union Metallic Cartridge Co., Bridgeport, Conn.—Metallic shells, bullets, wads, and percussion caps; cartridge machinery. H 70. 265
- 1205 Sparks, Thos. W., Philadelphia, Pa.—Drop-shot, mould, and conical balls. H 71. 265
- 1206 Billings & Spencer Co., Hartford, Conn.—Breechloading firearms. H 72. 265
- 1207 Remington, E., & Sons, Ilion, N. Y.—Firearms and ammunition. H 67. 265
- 1208 Smith & Wesson, Springfield, Mass.—Revolving firearms. H 69. 265
- 1209 Colt's Patent Firearms Manufacturing Co., Hartford, Conn.—Breechloading military and sporting small-arms, and military and pocket revolvers for metallic ammunition. H 72. 265
- 1210 Gardner, Wm., Hartford, Conn.—Breechloading cannon, machine guns, magazine shoulder arms. H 70. 265
- 1211 Forehand & Wadsworth, Worcester, Mass.—Revolving military and sporting firearm. H 71. 265
- 1212 Rawbone, Thos., Newark, N. J.—Cartridge-creaser. H 72. 265
- 1213 Whitney Arms Co., Whitneyville, Conn.—Breechloading military and sporting rifles, carbines, shotguns, revolvers, etc., with ammunition. H 68. 265
- 1214 Sharps Rifle Co., Bridgeport, Conn.—Rifles. H 72. 265
- 1215 Merchants' Shot Tower Co., Baltimore, Md.—Drop and mould shot. Capacity, one million bags per annum. Patent improved style soft barlead. H 71. 265
- 1216 Burgess, Andrew, Owego, N. Y.—Magazine rifles for military and sporting purposes. H 68. 265
- 1217 Goldmark, Joseph, New York, N. Y.—Percussion caps, primers, burglar alarm exploders, blasting detonators, metallic and paper cartridges, metal and paper boxes. H 71. 265
- 1218 Lovell, John P., & Sons, Boston, Mass.—Revolvers. H 72. 265
- 1219 Dana, Edw. A., Boston, Mass.—Expanding projectiles for rifled cannon. H 72. 265
- 1220 Schoverling & Daly, New York, N. Y.—Hunting and target rifles, revolvers, breechloading implements. H 70. 265
- 1221 Winchester Repeating Arms Co., New Haven, Conn.—Magazine or repeating military and sporting firearms, metallic cartridges for small arms. H 72. 265
- 1222 Wesson, Frank, Worcester, Mass.—Breechloading sporting and pocket target rifles. H 70. 265
- 1223 Rupertus, Jacob, Philadelphia, Pa.—Revolvers and repeating pistols. H 70. 265
- 1224 United States Cartridge Co., Lowell, Mass.—Metallic cartridges. Manufacturers of a perfect brass shell, central fire, solid head cartridge, capable of reloading many times; also, manufacturers of central and rim fire ammunition, of all kinds. H 72. 265
- 1225 American Arms Co., Boston, Mass.—Double-barreled, breechloading shotguns, and locks. H 72. 265
- 1226 Merwin, Hulbert, & Co., New York, N. Y.—Revolving firearms and magazine gun, military and sporting metallic cartridges. H 70. 265
- 1227 Evans' Rifle Manufacturing Co., Mechanic Falls, Me.—Magazine rifle, carbine, and musket. H 70. 265
- 1227a Clark & Snelder, Baltimore, Md.—Guns and parts of breechloading shot guns. H 71. 265
- 1228 Willis, Aug. L., Philadelphia, Pa.—Time and percussion shell fuse. H 68. 265
- 1229 Miller, Wm. Deeds, New York, N. Y.—Firearms. H 70. 265
- 1230 Schneelock, Otto, Brooklyn, N. Y.—Self-indicating target. H 70. 265

Weapons, Ammunition, Medicines.

- 1231 Stevens, J., & Co., Chicopee Falls, Mass.**—Breechloading shotguns, rifles, and pistols. They now supply thoroughly well-made strong and close-shooting breech-loading double shotguns, 10 or 12 gauge twist, \$40.00; laminated steel, \$45.00; extra finish, \$55.00. Their rifles and pocket rifles shoot with wonderful accuracy. Circulars and full particulars on application to their agent, Charles Folsom, 53 Chambers street, New York, or H 71 Main Building. H 71. 265
- 1232 Stoddard, Charles J., Washington, D. C.**—Cartridge-loading implement. H 72. 263
- 1233 Gatling, Richard J., Hartford, Conn.**—Battery gun. This celebrated machine gun fires from 800 to 1000 shots per minute, has great accuracy, and the larger calibres have an effective range of over two miles. Manufactured by the Gatling Gun Company, at Hartford, Conn. H 70. 266
- 1234 Witty, Calvin, New York, N. Y.**—Breechloading field cannon. H 69. 266
- 1235 Nekervia, Wm., Philadelphia, Pa.**—Model of Parrott gun, with caisson complete. H 72. 266
- 1236 South Boston Manufacturing Co., Boston, Mass.**—Bronze and steel rifle cannon, boat howitzer. H 71. 266
- 1237 Boon, B., West Medford, Mass.**—Miniature field artillery, limber, and field piece. H 72. 266
- 1239 Ridgway, John, Heirs of, Boston, Mass.**—Revolving battery. H 69. 267
- 1239a Stevens Institute of Technology, Hoboken, N. J.**—Model of the Stevens battery. T 67. 267
- 1239b Paulding, Kemble, & Co., Cold Spring, N. Y.**—Model of gun carriage. H 72. 267
- 1240 Ames Manufacturing Co., Chicopee, Mass.**—United States regulation, masonic, and society swords. H 72. 268
- 1241 Collins & Co., New York, N. Y.**—Machetes, swords, bayonets, etc. N 67. 268
- 242 Gaylord Manufacturing Co., Chicopee, Mass.**—Presentation and society swords. N 70. 268
- 1243 Wurfflein, Wm., Philadelphia, Pa.**—Parlor or gallery rifles and mechanical targets. H 72. 269
- 1244 Krider, John, Philadelphia, Pa.**—H 72. 269
- a Guns, pistols. 269
- b Fishing tackle and sporting goods. 270
- 1245 Providence Tool Co., Providence, R. I.**—Breechloading rifles for military, target, and sporting purposes. Manufacturers of "Peabody-Martini" rifles, for military, target, and sporting purposes. The standard arm of Great Britain, noted for strength, accuracy, simplicity, and beauty; 1,500,000 shots have been fired at the factory from 300,000 of these rifles without accident; also manufacturers of heavy hardware, ship-chandlers' and sail-makers' hardware, nuts, bolts, hinges, etc. H 72. 269
- 1246 Tryon, E. K., Jr., & Co., Philadelphia, Pa.**—Muzzle loading rifles, shotguns, revolvers, gunmakers' tools, etc. H 70. 269
- 1247 Harder, J., & Son, Lock Haven, Pa.**—Single, double, and three-barrel guns. Manufacturers of all kinds of muzzle-loading guns. H 71. 269
- 1248 Parker, Chas., Meriden, Conn.**—Double-barreled breechloading shot guns. H 70. 269
- 1249 Harrington & Richardson, Worcester, Mass.**—Revolving firearms with shell ejector. H 72. 269
- 1250 Burton, Bethel, Brooklyn, N. Y.**—Military and sporting magazine rifles, bayonets, portable cartridge reloader. H 72. 269

Medicine, Surgery, Prosthesis.

- 1252 Boericke & Tafel, 635 Arch street, Philadelphia, Pa.**—Official homeopathic medical preparations, books and periodicals. Manufacturing homeopathic pharmacists. Complete assortment of homeopathic medicines, in their different degrees and forms, for physicians, families and druggists; sugar of milk, pellets, lozenges, corks, vials. Publishers of homeopathic literature. N 50. 272
- 1252a Planten, H., & Son, New York, N. Y.**—Gelatin capsules. N 58. 272
- 1253 Wallace Bros., Statesville, N. C.**—Wholesale dealers in southern roots, herbs, barks, flowers, seeds, etc., of fine quality. Orders solicited. N 58. 272
- 1253a Dick, Dundas, 35 & 37 Wooster street, New York.**—Tasteless medicines. These soft capsules are acknowledged by the most eminent physicians as a true method to administer nauseous medicines, which often detract from, if they do not destroy, the beneficial effects of some of the most valuable remedies prescribed. No patent or proprietary medicines are put up in soft capsules. Explanatory circulars free at every drug store in the United States. These capsules were admitted to the last Paris Exposition. T 50. 272
- 1254 Seabury & Johnson, New York, N. Y.**—Plasters. T 44. 272
- 1255 Mitchell, Geo. E., Lowell, Mass.**—Surgical, medicinal, and pharmaceutical plasters and plaster compounds, lung protectors. N 53. 272
- 1256 Fehr, Julius, Hoboken, N. J.**—Compound talcum—baby powder. The hygienic dermal powder, useful for infants and adults, containing most valuable therapeutic properties. N 52. 272
- 1257 Randle, Wm. H., Baltimore, Md.**—Botanical medicines. N 52. 272
- 1258 Tims, Wm., Paterson, N. J.**—Homeopathic pellets. N 52. 272
- 1259 Wilson, B. O. & G. C., Boston, Mass.**—Pressed medicinal herbs, leaves, flowers, seeds, roots, barks, etc. N 52. 272
- 1260 Smith's Homeopathic Pharmacy, New York, N. Y.**—Homeopathic preparations in tinctures, triturations, and globules, cases for professional and family use. N 54. 272
- 1261 Ayer, J. C., & Co., Lowell, Mass.**—Cherry pectoral, cathartic pills, sarsaparilla, ague cure, hair vigor. N 52. 272

Medicines, Surgical Appliances.

- 1262 Blair's, H. C., Sons, Philadelphia, Pa.—T 47.
 a Wheat food. 273
 b Fountain syringes. 274
- 1263 Hance Bros. & White, Philadelphia, Pa.—Conical plate drug mill and filtering apparatus. P 43. 274
- 1263a Rohrbeck & Goebeler, New York, N. Y.—School air pump. N 55. 274
- 1264 Bishop, Joaquin, Sugartown, Chester Co., Pa.—Platina crucibles, stills, bottles, blowpipe tubes, ignition tubes, etc. Manufacturers of platinum crucibles, ignition tubes, stills, bottles, wire, and articles used by analytical chemists; refining and melting of scrap or native grain platinum. Old platinum bought and taken in exchange. P 49. 274
- 1265 Gilbert, Alfred A., Philadelphia, Pa.—Medicine chest and saddlebags. N 51. 274
- 1266 Hechelma, H. W., Allegheny City, Pa.—Anatomical preparations of human ear and eye. N 54. 275
- 1266a Seaman, Louis Livingston, New York, N. Y.—Auscultatory percussor, for diagnosing. N 58. 275
- 1266b Longaker, H. D., Allentown, Pa.—Surgical and anatomical specimens of malignant tumors. T 47. 275
- 1266c Bowen, Truman, Boston, Mass.—Casting in the lungs of a calf. N 54. 275
- 1267 McIlroy, T., New York, N. Y.—Invalid, elevating, and fracture beds, surgical operating and dissecting tables, oculists' and surgical operating chair. N 50. 276
- 1267a Whittemore, Joshua, Wakefield, Mass.—Elastic crutches. H 72. 276
- 1268 Condell, J., & Son, New York, N. Y.—Artificial limbs. N 58. 276
- 1268a Vaughan, W. R., Council Bluffs, Ia.—Belt trusses and supporters. N 58. 276
- 1269 Everett, B. C., Philadelphia, Pa.—Trusses, supporters, shoulder braces, elastic stockings, belts, and artificial limbs. N 56. 276
- 1269a Shepard & Dudley, New York, N. Y.—Surgical instruments and orthopedic apparatus. N 58. 276
- 1270 Taylor, Charles F., New York, N. Y.—Orthopedic apparatus and machines for local exercise. N 52. 276
- 1270a Day, G. Hayden, Bennington, Vt.—Fracture splints. N 55. 276
- 1271 Tiemann, Geo., & Co., No. 67 Chatham street, New York, N. Y.—Manufacturers of surgical instruments and orthopedic appliances. Established in 1826; branch store, 107 East Twenty-Eighth street, New York; steam factory, 81, 83, and 85 Boerum street, Brooklyn, E. D. Exhibit a most complete and compact operating set, containing, in ten compartments, over one hundred and eighty instruments, ample for every modern operation; specimens of operating cases used in America; Heine's osteotome for resection; Tiemann & Co.'s new rotating-blade osteotome; Tiemann & Co.'s new apparatus for fracture of arm and leg; anatomical syringe; Dawson's cautery battery, smallest battery known; Tiemann & Co.'s patent and other aspirators; patent steam atomizer; patent automatic and other hypodermic syringes; laryngoscopes; ophthalmologists', aurists', gynecologists', and other instruments; a variety of entirely new instruments of American origin, etc., etc. All articles exhibited are Tiemann & Co.'s own manufacture. Their catalogue, bound in cloth, numbering four hundred and twenty-six pages, and containing over fifteen hundred engravings, can be obtained in New York for the cost of binding—seventy-five cents. N 51. 276
- 1271a Newbauer, Wm. G., Long Island City, N. Y.—Medical-plaster spreading machine. P 47. 276
- 1272 Marks, A. A., New York, N. Y.—Artificial limbs, india rubber hands and feet. N 58. 276
- 1272a Lee, Benjamin, Philadelphia, Pa.—Apparatus for the treatment of spinal curvatures. N 56. 276
- 1273 Woods, J. T., Toledo, O.—Splint for leg and thigh. N 59. 276
- 1273a Ahl, David, Newville, Pa.—Adaptable porous splints. P 71. 276
- 1274 Pilling, Geo. P., Philadelphia, Pa.—Gold, silver, and plated surgical instruments. N 52. 276
- 1275 Mervine, S. P., jr., Philadelphia, Pa.—Gynecological apparatus. N 52. 276
- 1276 Gemrig, J. H., Philadelphia, Pa.—Surgical instruments and appliances. N 57. 276
- 1277 Perry, Vincent, Germantown, Pa.—Elastic bandages for surgical purposes. N 57. 276
- 1278 National Surgical Institute, Indianapolis, Ind.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276
- 1279 Penfield, E. C., & Co., Philadelphia, Pa.—Trusses, etc. N 59. 276
- 1280 Elastic Truss Co., New York, N. Y.—Elastic trusses and abdominal supporters. N 56. 276
- 1281 Blanck, Wm., & Son, Philadelphia, Pa.—Artificial limbs and appliances. N 58. 276
- 1283 Leiner, M., New York, N. Y.—Surgical instruments, ear cleaners, filtering racks. P 66. 277
- 1284 Rhodes, Isaac M., Hancock, Mich.—Easy chair, invalid bed, and fracture apparatus combined. N 59. 276
- 1285 Clement, Richard, Philadelphia, Pa.—Artificial limbs. N 58. 276
- 1286 Horn, W. H., & Bro., Philadelphia, Pa.—Trusses, abdominal supporters, etc. N 59. 276
- 1287 Darrach, S. A., Newark, N. J.—Wheel crutch and attachments; vulcanized rawhide spine support. N 58. 276
- 1288 Goodier, John, Philadelphia, Pa.—Lever and shield trusses for ruptures. N 58. 276
- 1289 Crandall, Chas. J., New York, N. Y.—Crutches. N 56. 276
- 1290 Wickett & Bradley, New York, N. Y.—Artificial limbs. N 57. 276
- 1290a Beckel, August, & Son, Philadelphia, Pa.—Crutches. 276
- 1291 Hinkle & Mayon, San Francisco, Cal.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276

Medical and Surgical Appliances, Tools.

- 1292 Handy & Boland, Atlanta, Ga.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276
- 1293 Kolbe, D. W., Philadelphia, Pa.—Surgical and orthopedical instruments; artificial limbs. N 53. 276
- 1294 Triumph Truss Co., New York, N. Y.—Truss and supporter. N 53. 276
- 1295 Kern, Horatio G., Philadelphia, Pa.—Surgical and dental instruments. N 56. 276
- 1296 Foster, James A., Philadelphia, Pa.—Artificial limbs. These limbs are manufactured at Philadelphia, Pa.; Cincinnati, O.; St. Louis, Mo.; Chicago, Ill.; and Detroit, Mich. Illustrated descriptive pamphlets free. N 53. 276
- 1297 Pingree, Luther F., Portland, Me.—Artificial limbs. N 53. 276
- 1298 Otto, F. G., & Sons, New York, N. Y.—Surgical instruments and orthopedical appliances. N 53. 276
- 1299 Bartlett, Butman, & Packer, Boston, Mass.—Trusses. N 51. 276
- 1300 Prees, C. A., New York, N. Y.—Artificial limbs and extensions. N 56. 276
- 1301 Palmer, B. Frank, L.L.D., Philadelphia, Pa.—New patent leg and arm, safety socket united to the stump, securing positive comfort. Original patent, 1846; new patent, perfected, 1873. New automatic system, for universal motion, power, and sound applied to writing, printing, music, etc. Original writing machine (type-writer) made in 1851, perfected in 1876. N 54. 276
- 1302 Seeley, I. B., Philadelphia, Pa.—Hard rubber trusses, abdominal supporters, pile instruments, elastic surgical hosiery, bandages, etc. N 53. 276
- 1303 McElroy, P. J., East Cambridge, Mass.—Glass and family syringes, feeding and drinking tubes, nipple shields, medicine droppers, etc. N 51. 276
- 1304 Miller, Jas. S., Philadelphia, Pa.—Trusses and braces. N 58. 276
- 1305 Rowand, John R., Philadelphia, Pa.—Gynecological apparatus. N 51. 276
- 1307 Allen & Johnson, Philadelphia, Pa.—Surgical and mechanical appliances, splints, operating chairs, crutches, supporters, and trusses. N 56. 276
- 1308 Bethell, John P., Philadelphia, Pa.—Surgical and gynecological apparatus; artificial steel leg. N 57. 276
- 1309 Philadelphia Truss Co., Philadelphia, Pa.—Trusses, supporters, shoulder braces, elastic stockings, belts; combination truss and supporter. N 57. 276
- 1310 Gunning, Thomas Brian, 34 East Twenty-first street, New York, N. Y.—Fractured jaw appliances, including Secretary Seward's; illustrating heads; cleft palate appliances; teeth plates; regulating plates. N 51. 276
- 1311 Spillman, Henry, New Orleans, La.—Trusses, supporters, and shoulder braces. N 58. 276
- 1312 Davis, James T., New York, N. Y.—Artificial human eyes. N 54. 276
- 1313 Teufel, J. J., office and factory, No. 103 South Eighth street, Philadelphia, Pa.—N 54. 276
 a Surgical instruments. 276
 b Dental instruments. 277
- 1314 Codman & Shurtleff, Boston, Mass.—N 57. 276
 a Surgical instruments, apparatus and appliances. 276
 b Dental instruments, furniture, and materials; laboratory tools, etc. 277
- 1315 Justi, H. D., Philadelphia, Pa.—Artificial teeth, tools, and materials for their manufacture. N 54. 277
- 1316 Johnson & Lund, Philadelphia, Pa.—Artificial teeth, corundum wheels, gold foil, tooth powders, amalgams, dental instruments and materials. N 59. 277
- 1316a Neve, Edward, Omaha, Neb.—Artificial teeth. N 58. 277
- 1317 Wardle, Thos., Philadelphia, Pa.—Artificial teeth and models. N 58. 277
- 1317a Chapman, John Winslow, Hyannis, Mass.—Artificial teeth. N 58. 277
- 1318 Brown, E. Parmlly, Flushing, N. Y.—Gold fillings in human teeth, dentists' cases, dental improvements. N 57. 277
- 1319 White, Samuel S., Philadelphia, Pa.—Artificial teeth, instruments, chairs, dental engines, stools, lathes, brackets, spittoons, gold foils, corundum wheels, etc. N 55. 277
- 1320 White, Chas. A., Philadelphia, Pa.—Celluloid apparatus and dental flasks, process of forming sets of artificial teeth, artificial dentures. N 56. 277
- 1321 Metcalf, David H., Battle Creek, Mich.—Tinman's pattern sheets and squares. N 68. 28c
- 1322 Allen, J., & Son, New York, N. Y.—Artificial dentures. N 57. 277
- 1323 Abbey, Chas., & Sons, Philadelphia, Pa.—Dentists' fine gold foil, soft or non-adhesive and adhesive. Our specialty for fifty years. N 58. 277
- 1324 Bonwill, W. G. A., Philadelphia, Pa.—Electro-magnetic mallet for filling teeth, carving marble, chasing metals, and as an autographic printing press; dental chair and engine. N 59. 277
- 1325 Taylor, J. Hare, Philadelphia, Pa.—Tooth paste, etc. N 57. 277
- 1326 Wardle, S., Cincinnati, O.—Specimens of dentistry. N 58. 277
- 1327 Neall, Daniel W., Camden, N. J.—Porcelain teeth. N 57. 277
- 1329 Crowther, D. W., Hagerstown, Md.—Mechanical and operative dentistry. N 58. 277
- 1330 Scott, Quincy A., Pittsburg, Pa.—Atmospheric disk for holding artificial teeth in the mouth, dental specimens, dentifrice. N 56. 277
- 1331 Ludwig, Schmidt, & Mohl, Houston, Texas.—Enamel; specimens of teeth. N 52. 277
- 1332 Valteau, William Jr., New York, N. Y.—Gold and silver leaf, gold and platinum filling for dentists' use. N 63. 277
- 1334 Cutter, Ephraim, Cambridge, Mass.—Adjustable chair for invalids. N 58. 276
- Hardware, Edge Tools, Cutlery, Metallic Products.**
- 1335 Collins & Co., New York, N. Y.—Cast steel tools; sledges. N 67. 28c
- 1336 Elgin National Watch Co., Elgin, Ill.—Watchmakers' tools. P 67. 28c

For location of objects, indicated by letter and figure, see Key to Notation, p. 26.

Hardware, Tools, Cutlery.

- 1336^a Shepardson, H. S., & Co., Shelburn Falls, Mass.—Diamond, pod, and screw driver bits, nail sets, gimlets, tool cases, etc. H 68. 280
- 1337 Douglas Axe Manufacturing Co., Boston, Mass.—Axes, hatchets, adzes, picks, etc. N 67. 280
- 1338 Pugh, Job T., Philadelphia, Pa.—Screw augers and auger bits. Known as an old established manufacturer of augers and bits; established 1774; a descendant of the inventor of the screw auger. These augers are known to all who use them, as the old hand-made auger, thereby gaining great durability. N 72. 280
- 1338^a Ernst & Elterich, Jersey City, N. J.—Tools. N 68. 280
- 1339 Conard, A. & I., Whitmarsh, Pa.—Cast steel wood-boring implements. P 71. 280
- 1339^a Eagle Square Manufacturing Co., South Shaftsbury, Vt.—Boring machines, squares, and rules. P 78. 280
- 1340 Elmira Nobles' Manufacturing Co., Elmira, N. Y.—Carpenters' and shipwrights' tools. N 71. 280
- 1340^a Buck, Charles, Milbury, Mass.—Edge tools. N 71. 280
- 1341 Quint, S. H., & Son, Philadelphia, Pa.—Stencils, stamps, checks, tags, etc.; metallic pattern letters, for raised lettering or castings, names, addresses, etc. H 71. 280
- 1341^a Genkinger, Adolph, Newark, N. J.—Tools, etc. N 68. 280
- 1342 Carter, Edw., Troy, N. Y.—Nickel-plated goods; planes, mechanics' tools. P 69. 280
- 1342^a Howell, S. J., Orange, Mass.—Polishing lathes and wheels, tweezers, saw frames. N 68. 280
- 1343 Stanley Rule & Level Co., New Britain, Conn.—Rules, levels, squares, and carpenters' tools. N 68. 280
- 1343^a Holland, James C., New York, N. Y.—Self-threading surgical and sewing machine needles, sail and packing needles. F 71. 280
- 1344 Billings & Spencer Co., Hartford, Conn.—Drop forgings, machinists' small tools, sewing machine shuttles. H 72. 280
- 1344^a Bossard, H., Philadelphia, Pa.—Watchmaker's slide rest. N 43. 280
- 1345 Eddy, Geo. M., & Co., Brooklyn, N. Y.—Fine steel band saws and tempered steel springs. N 57. 280
- 1345^a Fry's Bookbinder's Stamp & Tool Manufactory, Philadelphia, Pa.—Stamps and tools for the embellishment of books. T 75. 280
- 1346 Rose, Wm., & Bros., Philadelphia, Pa.—Bricklayers' plasterers' moulders' and saddlers' tools. N 72. 280
- 1346^a Douglass Manufacturing Co., New York, N. Y.—Mechanics' tools, cutting and boring implements. N 70. 280
- 1347 Colton, Alfred J., Philadelphia, Pa.—Stair hand-rail planes and double-edge cutters, carpenters' moulding planes. N 69. 280
- 1348 Pratt, Jas. T., & Co., New York, N. Y.—Tool chests for amateurs or mechanics. N 68. 280
- 1349 Maltby, Curtiss, & Co., New York, N. Y.—Nail puller. B 77. 280
- 1350 Kohler, Martin, Philadelphia, Pa.—Knee-rest for tailors. N 70. 280
- 1351 Carter, Henry, New York, N. Y.—Moulders' and plasterers' tools. N 70. 280
- 1352 Sinas, Philip, Baltimore, Md.—Glaziers' diamonds, machinery for circular and oval cutting, engravers' points, carbon tools. N 68. 280
- 1353 King, Josiah, & Son, New York, N. Y.—Planes and tools for wood workers. N 71. 280
- 1354 Booth, John, & Son, Philadelphia, Pa.—Carpenters' tools and sundries. N 69. 280
- 1355 Barton, D. R., Tool Co., Rochester, N. Y.—Mechanics' edge tools. N 70. 280
- 1356 American Shovel Co., Birmingham, Conn.—Shovels and scoops. P 68. 280
- 1357 Johnson, Wm., Hedenberg Works, Newark, N. J.—Carpenters' and other mechanics' tools and hardware. N 69. 280
- 1358 Hampton, Chas. F., Ardmore, Pa.—Augers and bits. N 71. 280
- 1359 Ten Eyck Axe Manufacturing Co., Cohoes, N. Y.—Axes, carpenters' edge tools, etc. N 68. 280
- 1360 White, Wm., Newark, N. J.—Axes, hatchets, adzes, bush hooks, stone hammers, picks, etc.; carriage shaft-couplings. P 71. 280
- 1361 Selsor, Geo., & Co., Philadelphia, Pa.—Hammers, edge and railroad tools, coffee mills, saw cutters, tacks, and nails. N 68. 280
- 1362 Star Tool Co., Middletown, Conn.—Machinists' and carpenters' tools; squares, bevels, gauges, standard steel rules, etc.; blind trimmings. These goods are of the finest finish; the squares are perfectly accurate and of different varieties, adapted to the wants of workers in wood or iron; the rules are graduated on spring-tempered steel, and are made only by this company. P 67. 280
- 1362^a Gardam, William, & Son, New York, N. Y.—Index plates, dividing and drilling machines. N 68. 280
- 1363 Snell Manufacturing Co., Flakdale, Mass.—Augers, auger bits, and boring machines. P 72. 280
- 1364 Buck Bros., Riverlin Works, Milbury, Mass.—Shank and socket firmer chisels and gouges, plane irons, screw drivers, nail sets, etc. N 69. 280
- 1365 Maydole, D., & Co., Norwich, N. Y.—Cast steel hammers. N 71. 280
- 1366 Foerster & Kraenter, Newark, N. J.—Tools. N 68. 280
- 1367 Davis Level & Tool Co., Springfield, Mass.—Adjustable levels and planes and iron planes. P 71. 280
- 1368 DeWitt, Morrison, & Kelley, Philadelphia, Pa.—Carpenters', millwrights', gasfitters', pump, and car builders' machine and auger bits. These are the celebrated arrow brand for boring all kinds of wood. P 71. 280
- 1369 Shepherd & Lloyd, Philadelphia, Pa.—Scales, glass cutters, lard presses, and hardware specialties. N 71. 280
- 1370 Rowland, B., & Co., Philadelphia, Pa.—Shovels, spades, and scoops; draining and ditching tools. N 72. 280

Hardware, Tools, Cutlery.

- 1371 Yerkes & Plumb, Philadelphia, Pa.—Edge tools, hammers; railroad, mining, and blacksmiths' sledges. N 70. 280
- 1372 Bailey, Leonard, & Co., Hartford, Conn.—Bench planes, try squares, bevels. N 68. 280
- 1373 Mayo, M. C., Boston, Mass.—Plane. P 71. 280
- 1374 Miller, Edward, & Co. Meriden, Conn.—N 48. 280
 a Machine oilers. 280
 b Tinnerns' hardware. 284
- 1375 Bemis & Call Hardware & Tool Co., Springfield, Mass.—Machinists' tools. P 72. 280
- 1376 Newton, C. C., Dunkirk, N. Y.—Twisted drill taps, dies, and reamers. T 60. 280
- 1377 Ives, W. A., & Co., New Haven, Conn.—Wood-boring implements, bit braces. N 72. 280
- 1378 Mills, E., & Co., Philadelphia, Pa.—Braces, bits, bevels, screwdrivers, spokeshaves, squares, and saw pads. P 68. 280
- 1379 Donaldson, J. W., Massillon, Ohio.—Block stamps for stamping garments for braiding and embroidery. P 68. 280
- 1380 Bailey Wringing Machine Co., New York, N. Y.—Metallic bench planes, spokeshaves, box scrapers, etc. N 69. 280
- 1381 Klein, Logan, & Co., Birmingham Tool Manufactory, Birmingham, Pa.—Picks, mattocks, fire shovels, etc. N 71. 280
- 1382 Crossman, A. W., & Son, West Warren, Mass.—Carpenters' hand tools. N 70. 280
- 1383 Nixon, G. W. C., New York, N. Y.—Engravers' tools. N 68. 280
- 1384 Ohio Tool Co., Columbus, O.—Planes, screws, edge tools, plane irons, handles, etc. N 71. 280
- 1385 Palmer, Wm. F., Berry street, bet. Fourth & Fifth streets, San Francisco, Cal.—Edge tools. All tools warranted of excellent cutting qualities. N 70. 280
- 1386 Rue, Theodore, Philadelphia, Pa.—Stencils and tools, nickel-plated signs and numbers, steel stamps. T 54. 280
- 1386 Taylor, Thomas, cor. Eddy & Friendship streets, Providence, R.I., P.O. box 993.—Blood-stone burnishers. Blood-stone burnishers and reflectors made to order. N 71. 280
- 1387 Smyth & Pennington, Paterson, N. J.—Files and rasps. N 69. 280
- 1388 Whitney Manufacturing Co., South Ashburnham, Mass.—Tools used in manufacturing chairs. W 30. 280
- 1389 Franklin, Mrs. Esther P., Philadelphia, Pa.—Marking stencils and branding irons. T 58. 280
- 1390 Sandusky Tool Company, Sandusky, O.—Planes, plane irons, bench and hand screws, chisel and file handles. P 71. 280
- 1391 Hopkins, C., Waltham, Mass.—Watchmakers' tools. N 68. 280
- 1392 Tower, John J., New York, N. Y.—N 68. 280
 a Carpenters' planes, wrenches, adjustable clamps. 280
 b Handcuffs and police implements, padlocks. 284
- 1393 Harrison & Kellogg, Troy, N. Y.—N 68. 280
 a Screw wrenches. 280
 b Plain, tinned, japanned, and nickel-plated malleable iron castings to order, in all varieties; extra refined air-furnace irons. (Low freights open all the year.) 283
- 1394 Wills, Edwin S., Philadelphia, Pa.—N 69. 280
 a Tools. 280
 b Wood screws, etc. 284
- 1395 Miller's Falls Co., Miller's Falls, Mass.—P 71. 280
 a Mechanics' tools. 280
 b Hardware. 284
- 1396 Lloyd, Supplee & Walton, Philadelphia, Pa.—P 70. 280
 a Hollow auger, spokeshave. 280
 b Locks. 284
- 1397 Vatterlein, John, Plainfield, N. J.—N 69. 280
 a Carpenters' gauges. 280
 b Gate hardware. 284
- 1398 Lowentrant, P., Newark, N. J.—N 70. 280
 a Mechanics' tools. 280
 b Hardware. 284
- 1399 Hart, Bliven, & Mead Manufacturing Co., New York, N. Y.—P 70. 280
 a Carpenters' tools. 280
 b Carpenters', saddlers', and carriage hardware; gong door bells. 284
- 1400 Hotchkiss's Sons, Bridgeport, Conn.—N 72. 280
 a Hand drills, saw sets, currycombs. 280
 b Pruning shears. 284
 c Harness snaps, bull rings. 284
- 1401 Beaver Falls Cutlery Co., Beaver Falls, Pa.—Table, pocket, and miscellaneous cutlery. Special exhibits, large carving knife and fork, nine and a half feet long, cost \$1500; revolving knife, with three hundred and sixty-five blades. N 70. 281
- 1402 Barney, E. H., Springfield, Mass.—Skates, perforating stamp, show case and counter combined. Barney & Berry's celebrated "Club All-clamp and Rink Skates," patented 1859, 1866, 1868, 1873. I show the advantage of a screw fastening for operating clamps on metal-topped skates; also, originality of the designs, fine quality, workmanship, and finish. P 68. 281
- 1403 Will & Finck, San Francisco, Cal.—California carving sets and cutlery, bar tools. P 71. 281
- 1404 Union Hardware Co., Wolcottville, Conn.—Skates, skate straps, tool handles, wood turning, dog collars, etc. N 69. 281
- 1405 Badger, Benj. F., Charlestown, Mass.—Razor strops. Leading styles, "Genuine Emersons," established 1810; "Souvenir," for presentation; "German Belt," with non-extensible base; "Badger's super-quality;" "Patent X;" "Square." N 72. 281
- 1406 Goldschmidt, Herrmann, New York, N. Y.—Razor strops. N 71. 281

For location of objects, indicated by letter and figure, see Key to Notation, p. 25; ground plan, p. 26.

Hardware, Cutlery, Metallic Ornaments.

- 1407 Florence Sewing Machine Co., Florence, Mass.—Skates. N 71. 281
- 1408 Herder, L. & Son, Philadelphia, Pa.—Shears and scissors. N 69. 281
- 1409 Russell, John, Cutlery Co., Green River Works, New York, N. Y.—Table cutlery, butchers', hunters', painters', and druggists' knives, etc. N 67. 281
- 1410 Shipley, Howard W., Philadelphia, Pa.—Pocket cutlery. P 71. 281
- 1411 Seymour, Henry, & Co., New York, N. Y.—Tailors', bankers', and sheep shears, trimmers, and scissors. N 71. 281
- 1412 Evans, W. D., & Co., Philadelphia, Pa.—Razor strops and oilstone hone. N 72. 281
- 1413 Meriden Cutlery Co., New York, N. Y.—Table cutlery. N 69. 281
- 1414 Holley Manufacturing Co., Lakeville, Conn.—Pocket cutlery. P 71. 281
- 1415 Lamson & Goodnow Manufacturing Co., Shelburne Falls, Mass.—Table and butchers' cutlery. N 70. 281
- 1416 United States Steel Shear Co., West Meriden, Conn.—Solid cast steel scissors and shears. N 71. 281
- 1417 Miller Bro. Cutlery Co., West Meriden, Conn.—Pocket cutlery. N 70. 281
- 1418 Heinisch's, R., Sons, Newark, N. J.—Tailors' shears, scissors, and trimmings. N 69. 281
- 1419 Wiss, J., Newark, N. J.—Cutlery, shears, and scissors, hand and pole pruning shears. P 68. 281
- 1420 Plimpton, J. L., New York, N. Y.—Parlor skates. P 71. 281
- 1421 Friedman & Lauterjing, New York, N. Y.—Razors. P 70. 281
- 1422 Funke, Leopold, St. Louis, Mo.—Knife with three hundred and sixty-six blades. T 60. 281
- 1423 Robbins, Clark & Biddle, Philadelphia, Pa.—Cutlery. N 43. 281
- 1424 Gesswein & Reichhelm, New York, N. Y.—Polishing implements and materials. N 70. 281
- 1425 Northfield Knife Co., Northfield, Co. N.—Pocket cutlery. N 71. 281
- 1426 Breeden & Nelke, New York, N. Y.—Spring scissors and shears. P 71. 281
- 1427 Goodell Company, Antrim, N. H.—Cutlery and shoe knives. N 71. 281
- 1428 Marx Bros., New York, N. Y.—Folding pocket scissors. N 69. 281
- 1429 Winslow, Samuel, Worcester, Mass.—Skates. H 71. 281
- 1430 Brady, Edward, Philadelphia, Pa.—U 63. 281
 a Metal boot fastening. 281
 b Model of iron fort. 283
- 1431 Willis, Aug. L., Philadelphia, Pa.—Ice creeper. H 71. 281
- 1432 Peck & Snyder, New York, N. Y.—Skates. H 71. 281
- 1433 New York Knife Co., Walden, N. Y.—Table, pen, and pocket cutlery. N 67. 281
- 1434a Louis, Julius, & Co., Jeffersonville, Ind.—Oilstones. N 68. 282
- 1434 Mitchell, J. E., Philadelphia, Pa.—Carpenters', engravers', opticians', and cutlery's grindstones; oilstones, razor hones, etc. P 67. 282
- 1434a Boyd & Chase, New York, N. Y.—Arkansas and Washita oilstone. N 69. 282
- 1434b Zucker & Levett, New York, N. Y.—Hard and soft rouge and composition for polishing metals. T 53. 282
- 1435 Baeder, Adamson, & Co., Philadelphia, Pa.—N 68. 282
 a Sand and emery paper, emery cloth, emery, corundum, flint. 282
 b Glue. 652
 c Curled hair. 669
- 1435a Nittinger, Edward, Philadelphia, Pa.—Quartz paste for sharpening knives, etc. T 52. 282
- 1435b Tucker, Geo., New York, N. Y.—Polishing compositions. N 68. 282
- 1435c White, T. R., Philadelphia, Pa.—Sandilene, for cleaning marble, metal, glass, etc. T 54. 282
- 1436 Harrison, W. H., & Bros., Philadelphia, Pa.—Low and elevated firegrates, fenders, fireplaces, etc. T 52. 283
- 1436a Garland, Benj., Philadelphia, Pa.—Iron bridge and fence railings. Y 62. 283
- 1437 Dixon, Thos. S., & Sons, Philadelphia, Pa.—Grates, fenders, fireplace fittings, and gas logs. T 49. 283
- 1437a Manly, M. M., & Son, Philadelphia, Pa.—Wrought iron hand rails, mouldings, and bridge railings. T 60. 283
- 1438 Jackson, Wm. H., & Co., New York, N. Y.—Grates, fenders, fireplaces, fire irons, and fancy coal boxes. N 67. 283
- 1439 Lalance & Grosjean Manufacturing Co., New York, N. Y.—Stamped iron culinary ware. T 68. 283
- 1440 Reyburn, Hunter, & Co., Philadelphia, Pa.—Weather vanes. N 62. 283
- 1441 Tin Plate Decorating Co., New York, N. Y.—Decorated tin plates, boxes, cans, etc. N 70. 283
- 1442 Miller & Krips, 716 & 718 Cherry street, Philadelphia, Pa.—Plain and ornamental bronze; white bronze, brass, German silver, and zinc castings. Also, sole manufacturers of bronze reliefs in a new style of mounting; bronze reliefs made to order, from life or photograph. P 72. 283
- 1443 Demuth, Wm., & Co., 601 Broadway, New York, N. Y.—Show figures in metal and wood, meerschau and briar pipes, with rubber and amber mouthpieces; smokers' articles in general. P 69. 283
- 1444 Mott, J. L., Iron Works, New York, N. Y.—Fountains, vases, statuary, settees, aquaria, aquarium fountains, drinking fountains, candelabra, lamp pillars, crestring, castings, railings, gates, summer houses, band stands, stable fixtures, etc. N 54. 283
- 1445 Paxon, Comfort & Co., New York, N. Y.—Zinc monuments. T 64 and outside. 283
- 1446 Woods, Sherwood, & Co., Lowell, Mass.—White lustral wire ware, comprising an extensive line of household, table, and fancy goods, such as fruit, cake and jewel baskets, tea and coffee strainers, castors, toilet articles, etc. N 72. 283

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-43.

Wrought and Cast Metal Work, Hardware.

- 1447 Ansonia Brass & Copper Co.,** Ansonia, Conn.—Brass and nickel-plated kettles. N 57. 283
- 1448 Rohrman, J. Hall, & Son, Philadelphia, Pa.**—Tea, coffee, and spice caddies; water coolers and decorated japanned tinware. P 70. 283
- 1449 Hussey, C. G., & Co., Pittsburg, Pa.**—Copper sheet, circle, and bottoms; planished and ingot copper, copper lighting rods, sheet brass, brass kettles. N 72. 283
- 1450 Champion Fence Co., Kenton, O.**—Wrought and malleable iron fence and gate. The advantages claimed for the champion iron fence are: 1st—The longitudinal rail is rolled in T shape, thus giving the greatest lateral strength, also horizontal strength, when put up in fence, without bolts, rivets, or forging whatever, leaving the iron as it comes from the rolls. 2d—As the arched or cylindrical form of the iron resists the greatest strain, the pickets are rolled concave, convex, with a flange on each side, forming the strongest picket that can be made from the same amount of iron. 3d—The ornaments used, together with the different connecting parts, are made of refined malleable iron, or stamped from wrought iron plates, and of any desired form, and at one-tenth the cost of making them at the forge. 4th—The pickets are driven into the ornaments and passed to nearly the top of the picket, at the rear of the ornaments. There are lugs and clips, which are clinched, combining ornament and picket together, forming a strong and durable top-head for the picket. 5th—The fence is put together with clips; these are slipped on the T rail, and the sides of the ornaments form circles, or segments of circles, thus rendering them adjustable to any and all grades or angles. 6th—The panels are connected with a compound clamp, which holds them firmly together, at the same time allowing for the expansion and contraction of the iron. 7th—That we have in the combination of our rail and picket the strongest and most ornamental fence that can be made, from the same amount of material. 8th—That we can, by our adjustable posts, keep our fence in perfect line; also, that we can set the fence upon coping or stone walk of any grade, the same as upon our iron foundation. 9th—That we can pack the fence for shipment, in compact bundles, and put it upon the ground as conveniently as a wooden fence can be put up. 10th—That we manufacture the fence without the use of any costly and cumbersome machinery, being virtually made when the iron comes from the foundry and the rolls. 11th—The base upon which the fence is set is of cast iron, eighteen inches wide at the bottom, and six inches at the top; twenty-eight inches in length, which is set in the ground; upon this foundation is placed a wrought iron post, adjustable front and rear, and also adjustable at the top, while at the bottom it would be stationary, or *vice versa*. Upon this post we also adjust the height of the fence. One of the beauties of our invention is, that we make a fence that looks light, yet strong and durable. (*Ohio State Building.*) 283
- 1451 Bevin Bros. Manufacturing Co.,** East Hampton, Conn.—N 72. 283
- a Bell metal kettles. 283
- b Bells. 284
- 1452 Armbruster, Jacob H., Philadelphia, Pa.**—Organ and sash weights. (*Organ, East Gallery.*) 284
- 1453 Yale Lock Manufacturing Co.,** Stamford, Conn.—Locks, ornamental bronze hardware, post-office boxes. P 72. 284
- 1453a Bray, Edw. L., Boston, Mass.**—Balance spring curtain fixture. (*East Gallery.*) 284
- 1454 Stewart & Mattson, Philadelphia, Pa.**—Building hardware, locks, door knobs and trimmings. N 69. 284
- 1454a Dexter Spring Co., Hulton, Pa.**—Carriage springs. T 60. 284
- 1455 Nock, Geo. W., Philadelphia, Pa.**—Locks and padlocks. N 70. 284
- 1455a Cleveland Steel Horseshoe Co.,** Cleveland, O.—Steel horseshoes and bars, hand shoe formers. T 59. 284
- 1456 Trenton Lock & Hardware Co., Philadelphia, Pa.**—Patent lever and spring, with corrugated bolt door locks, latches, knobs, and other hardware. N 68. 284
- 1456a Adams, Wm. R. M., New York, N. Y.**—Door bolt and chain check. N 72. 284
- 1457 Shannon, J. B., Philadelphia, Pa.**—Hand-made locks and building hardware. N 72. 284
- 1457a Smith & Egge, Bridgeport, Conn.**—Padlocks, hasps, chains, etc. N 70. 284
- 1458 Wells & Hope Co., Philadelphia, Pa.**—Metallic show cards and advertising signs; decorative glass printing, etc. P 72. 284
- 1458a Stafford Manufacturing Co.,** New York, N. Y.—Stencil combinations, machine cut alphabets and figures; key-rings, checks, and badges. N 69. 284
- 1459 Corbin, P. & F., New Britain, Conn.**—House trimmings and miscellaneous hardware. N 72. 284
- 1459a Brooke, E. & G., Birdsboro', Pa.**—Nails. T 67. 284
- 1460 American Stair-Rod Co., New York, N. Y.**—Stair rods and stair carpet fasteners. N 71. 284
- 1461 Stanley Works, New Britain, Conn.**—Wrought iron butts, japanned, bronzed, and plated; hinges, door bolts, etc. P 71. 284
- 1461a Orbeton, W. W. S., Boston, Mass.**—Screw braces and screw-brace blind hinges. N 68. 284
- 1462 Globe Nail Co., Boston, Mass.**—Machine-made horseshoe nails. N 71. 284
- 1463 Tufcharfer, F., & Co., Cincinnati, O.**—Enameled iron show cards. P 72. 284
- 1464 Wiler, Wm., Philadelphia, Pa.**—Stair rods and plates. N 71. 284
- 1465 Walton, E. S., & Co., Philadelphia, Pa.**—Lock hardware and fine bronze work. N 72. 284
- 1467 Dunbar, Hobart, & Whidden,** South Abington, Mass.—Tacks, brads and nails, steel shanks, heel plates, etc. P 72. 284
- 1468 Hildebrand & Wolf, Philadelphia, Pa.**—Trunk locks, padlocks, dead-latches, door springs, etc. P 69. 284

Hardware, Locks, etc.

- 1469 Carr, Crawley, & Devlin, Philadelphia, Pa.—Building, cabinet, carriage, and saddlery hardware; malleable iron, brass, and steel castings. N 70. 284
- 1470 Hall's Safe & Lock Co., Cincinnati, O.—Bank and time locks. H 67. 284
- 1471 Whitaker & Skirm, Trenton, N. J.—Iron chains, chute nails. T 65. 284
- 1472 Gould's, M., Sons, 33 & 35 Duane street, New York, N. Y., and 514 Commerce street, Philadelphia.—Stair rods, step plates, dog collars, upholstery, and trunk hardware. Manufacturers of stair rods, stair plates, dog collars, stepladders, trunk rivets, and all kinds of trunk hardware; also, a general line of upholstery hardware. Factory, Newark, N. J. N 71. 284
- 1473 Morton, Thos., New York, N. Y.—Sash chain and attachments for suspending windows, doors, etc. T 49. 284
- 1474 Mallory, Wheeler, Co., New Haven, Conn.—Door locks and knobs, padlocks, etc. N 69. 284
- 1475 Gaylord Manufacturing Co., Chicopee, Mass.—Cabinet locks. N 70. 284
- 1476 Union Manufacturing Co., New Britain, Conn.—Plain and ornamental butt hinges. N 69. 284
- 1477 Mercereau, W. T. & J., Newark, N. J.—Stair rods and plates, dog collars and muzzles, bridle fronts, and upholsterers' hardware. N 71. 284
- 1478 Marvin's Safe Co., New York, N. Y.—Locks. H 69. 284
- 1479 Bohannon, Wilson, Brooklyn, N. Y.—Brass spring padlocks and car locks. P 68. 284
- 1480 Union Steel Screw Co., Cleveland, O.—Besemer steel wood screws, with samples showing stages of manufacture. T 59. 284
- 1481 Clark & Co., Buffalo, N. Y.—Nickel-plated builders' hardware. N 71. 284
- 1482 Van Wagoner & Williams, 32 Beckman street, New York, N. Y.—Spring hinges and door springs of the leading kinds, for screen and other doors, gates, etc. All articles of superior manufacture. N 70. 284
- 1483 Gong Bell Manufacturing Co., East Hampton, Conn.—Bells. P 72. 284
- 1484 Romer & Co., Newark, N. J.—Locks for railroad switches, cars, prisons, stores, etc. N 71. 284
- 1485 Cowell, J. J., & Co., Newark, N. J.—Builders' and trunk hardware. Manufacturers of trunk and builders' hardware, sash pulleys, trunk rollers, catches, handle caps, stay hinges, clamps, etc. Also malleable and gray iron small castings. N 71. 284
- 1486 Middletown Tool Co., Middletown, Conn.—Plane irons, harness snaps, washer cutters, hitching chains, plane-makers' hardware, etc. P 71. 284
- 1487 Whipple, H. J. P., West Meriden, Conn.—Door-knob attachment. P 68. 284
- 1488 McEachern, Daniel, Wilmington, Del.—Cast iron Centennial chain, each link representing a State and giving the Governor's name. Q 78. 284
- 1490 Tiebout, W. & J., New York, N. Y.—Brass, galvanized, and ship chandlery hardware. H 68. 284
- 1491 Parker & Whipple Co., West Meriden, Conn.—Door-knob attachment and adjustment. N 69. 284
- 1492 Thorn, Stephen S., 39 Oliver street, Newark, N. J.—Brass, copper, and iron wire ferrules, from $\frac{3}{8}$ to $\frac{3}{4}$ inches, for paint brushes—these ferrules warranted not to burst or expand; bonnet and insulating wire. N 69. 284
- 1493 Worrell Bank Lock Manufacturing Co., Philadelphia, Pa.—Bank lock. H 70. 284
- 1496 Herring & Co., New York, N. Y.—Safe, bank, and time locks. H 69. 284
- 1497 Neuman, R., & Co., Newark, N. J.—Satchel and traveling bag frames, and bag trimmings. P 68. 284
- 1498 Van Alen & Co., Northumberland, Pa.—Cut nails and spikes. T 66. 284
- 1499 Blake Bros. Hardware Co., New Haven, Conn.—Hardware for builders', cabinet makers', and carriage makers' use. P 69. 284
- 1500 Miller, D. K., Lock Co., Philadelphia, Pa.—Locks. P 70. 284
- 1501 Eagle Lock Co., Terryville, Conn.—Trunk and cabinet locks. H 67. 284
- 1502 Judd, Hubert L., New York, N. Y.—Upholstery and fancy hardware. N 69. 284
- 1503 Coleman Eagle Bolt Works, Philadelphia, Pa.—Carriage bolts, nuts, and axle clips. P 71. 284
- 1504 Meeker, D. M., & Son, Newark, N. J.—Iron, bronze, and German silver castings. N 71. 284
- 1505 Hall, P. W., Austin, Texas.—Combination door, drawer, and trunk locks. P 68. 284
- 1506 Norwalk Lock Co., South Norwalk, Conn.—Door locks, knobs, padlocks, and builders' hardware. N 70. 284
- 1507 Terwilliger & Co., New York, N. Y.—Safe locks. H 72. 284
- 1508 Arms, Bell, & Co., Youngstown, O.—Nuts, bolts, and washers. V 63. 284
- 1509 Wheeling Hinge Co., Wheeling, W. Va.—Hinges, butts, wrought goods, and washers. N 68. 284
- 1511 Vandusen & Tift, Cincinnati, O.—Bells. T 53. 284
- 1512 American Screw Co., Providence, R. I.—Gimlet pointed screws of iron, brass, and steel; coach, hand rail, and machine screws; rivets; stove and tire bolts. P 69. 284
- 1513 Branford Lock Works, New York, N. Y.—Rim and mortise door locks and latches, brass and steel keys, door knobs, lock furniture. P 69. 284
- 1514 Easton Lock Works, Easton, Pa.—Rim and mortise locks and latches; safety locks and night latches. N 72. 284
- 1515 Wilson, John, Chicago, Ill.—Fire nozzle. B 69. 284
- 1515a Keystone Hardware Manufacturing Co., Reading, Pa.—Hardware. N 69. 284
- 1516 Quigley, W. E., Waterbury, Pa.—Hand-made horsehoes. T 71. 284

Hardware, Rubber Goods, Cordage, etc.

- 1517 Evans, F. H., Brooklyn, N. Y.—Expansion bolts and screw fastenings; photographs of other manufactures. P 69. 284
- 1519 Field, A., & Sons, Taunton, Mass.—Tacks, brads, nails, etc. P 68. 284
- 1520 Valentine & Butler Safe & Lock Co., New York, N. Y.—Safe locks. H 70. 284
- 1521 Lewis, Oliver, & Phillips, Pittsburg, Pa.—Wagon and heavy hardware, fence pickets, etc. T 64. 284
- 1522 New Britain Lock Co., New Britain, Conn.—Key register; dial, bank, safe, and time locks. N 72. 284
- 1523 American Wire & Screw Nail Co., cor. Madison and State streets, Covington, Ky.—Common, bright, smooth, and barbed wire nails with sharp points; small, large, depressed heads and without heads. Moulding nails, wire cigar-box nails, iron and brass oval head escutcheon pins. Wire screw nails (patented). These nails have round, tapering points, and screw thread till under the head. Are to be driven with a hammer as quick as common nails, but turn like screws while driving under the hammer. Wire nails of every description, also blued, tinned, and colored nails. P 71. 284
- 1524 Buckman, Ira, Brooklyn, N. Y.—Torsion spring hinge, automatic window lock, and door fixtures. N 68. 284
- 1525 Riverside Iron Works, Wheeling, W. Va.—Nails and spikes. T 64. 284
- 1526 Turner & Seymour Manufacturing Co., Walcottville, Conn.—Brass and iron upholstery goods and hardware, and notion goods. N 68. 284
- 1527 Sargent & Greenleaf, Rochester, N. Y.—Chronometer, bank, safe, and flat key locks. H 72. 284
- 1528 Wilcox, Wm., Manufacturing Co., Middletown, Conn.—Padlocks, plate locks, and keys. N 71. 284
- 1529 King, J. M., & Co., Waterford, N. Y.—Stocks and dies, plug and taper taps, pliers, etc. N 71. 284
- 1530 Keyless Padlock Co., New York, N. Y.—Keyless padlocks. N 70. 284
- 1531 Lyon, Sylvanus, New York, N. Y.—Locks. N 72. 284
- 1532 Johns, H. W., New York, N. Y.—Tacks, etc. P 47. 284
- 1533 Barton, W. E., East Hampton, Conn.—Belts. N 71. 284
- 1534 Clarke Combination Lock Co., Baltimore, Md.—Combination keyless locks. P 68. 284
- 1535 Orbeton, Wm. W., Boston, Mass.—Screw braces and hinges. N 68. 284
- Fabrics of Vegetable, Animal, or Mineral Materials.**
- 1536 Glendale Elastic Fabrics Co., Easthampton, Mass.—Woven and braided elastic rubber fabrics. F 68. 285
- 1537 Easthampton Rubber Thread Co., Easthampton, Mass.—India rubber thread and rubber in process of manufacture. F 68. 285
- 1538 Willis, Aug. L., Philadelphia, Pa.—Rubber rails for tracks. H 71. 285
- 1539 Sellers, Chas. P., Philadelphia, Pa.—Corn brooms and whisks. T 46. 286
- 1540 Reynolds, C. T., & Co., New York, N. Y.—Brushes. P 42½. 286
- 1540a Isaacs, M. C., & Co., Chicago, Ill.—Wire brooms, casting, and glue brushes. N 71. 286
- 1541 Leiner, M., New York, N. Y.—Brushes and ear cleaners. T 65. 285
- 1541a Kerr, Hugh S., Philadelphia, Pa.—Sponge brushes. B 71. 286
- 1542 Lovell, G. H. & M. F., Philadelphia, Pa.—Ear brush. T 50. 286
- 1542a Pollock & Son, Newark, N. J.—Brushes, buffs, etc. N 68. 286
- 1543 Miles, Bros., & Co., New York, N. Y.—Brushes. N 69. 286
- 1544 Grand Rapids Brush Co., Grand Rapids, Mich.—Brushes. N 72. 286
- 1545 Clinton, E., & Co., Philadelphia, Pa.—Brushes. N 66. 286
- 1546 Bowman, C. A., & Bro., Madison, Ind.—Clothes brushes made of broom corn. T 46. 286
- 1547 Johns, H. W., New York, N. Y.—Brushes. P 47. 286
- 1548 Florence Manufacturing Co., Florence, Mass.—Hair brushes. B 70. 286
- 1550 Bailey, John T., & Co., Philadelphia, Pa.—Rope and twines. B 68. 287
- 1551 Baumgardner, Woodward, & Co., Philadelphia, Pa.—Cordage and clothes lines, tarred yarns, hemp packing. B 70. 287
- 1551a Lawrence, Waterbury, & Co., New York, N. Y.—Cordage. T 78. 287
- 1552 Vyse, Robt. H., Brooklyn, N. Y.—Rawhide rope, sash cord, and round belting. B 68. 287
- 1553 Hooper, Wm. E., & Sons, Baltimore, Md.—Twine. D 78. 287
- 1554 Hart, A. H., & Co., 80 White street, New York, N. Y.—Elm Flax Mills; flax twines for upholsterers, sail, bag, broom makers, etc.; flax yarns, shoe threads, etc. B 68. 287
- 1555 Wall's, William, Sons, New York, N. Y.—Ships' rigging; rope and cordage. E 78. 287
- 1556 Tucker, Carter, & Co., New York, N. Y.—Wire and manila ropes. B 69. 287
- 1557 Hart, Clarence A., Philadelphia, Pa.—Painted silk banners. B 78. 288
- 1557a Reynolds, J. P., & Co., New York, N. Y.—Escutcheons of military and naval service. T 44. 288
- 1558 Lilley, M. C., & Co., Columbus, O.—Masonic goods and society supplies. Manufacture society furniture, jewels, regalia, uniforms, banners, band and military goods. Price lists upon application. P 65. 288
- 1559 Wilson, J. H., Philadelphia, Pa.—Regalias, flags, and banners. F 70. 288
- 1560 New England Bunting Co., Lowell, Mass.—Bunting. B 75. 288
- 1561 Salisbury & Co., New York, N. Y.—Muslim flags; engraving, designing, lithographing, and printing; original manufacturers of American, election, and other decorations—all nations—in sets or single. H 77. 288

ESTABLISHED 1841.

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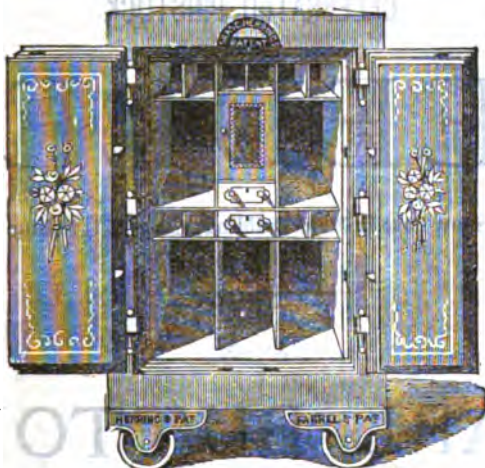
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OF ONE DOZEN EACH.



FISH LINES,

FISH HOOKS,

SMALL WARES,

ETC., ETC.

Paper, Wooden, Metallic Fabrics, etc.

- 1562 Piton, Camille, Philadelphia, Pa.—Trophies representing America, Europe, Asia, and Africa. (*New and Centre Transp.*) 288
- 1563 Tremain, Chas., Manlius, N. Y.—Paper barrels; cheese and fruit packages. T 57. 289
- 1564 Trasel, Edward G., New York, N. Y.—Papier maché household ware, chamber sets, pails, cuspidors, etc. P 64. 289
- 1565 Wakefield Rattan Co., Boston, Mass.—Rattan baskets. T 57. 289
- 1566 Beaudett, Homer J., Greenpoint, N. Y.—Fancy scroll work. P 50. 289
- 1567 Waters, E., & Sons, Troy, N. Y.—Boat barrels, camp stools, seats, packages for volatile liquids, etc., made of paper. B 73. 289
- 1568 Jennings Brothers, 352 Pearl street, New York, N. Y.—Japanese paper ware. Their manufacture of pails, basins, pitchers, spittoons, cuspidors, etc., are thoroughly waterproof, durable, and ornamental; are not affected by the climate. T 68. 289
- 1569 Preston & Merrill, Boston, Mass.—Wooden boxes. P 48. 289
- 1570 Dorman Manufacturing Co., New York, N. Y.—Baskets, urns, carriage bodies, etc. P 59. 289
- 1571 Paxon, Comfort, & Co., Philadelphia, Pa.—Burial robes and dresses; casket trimmings. B 73 and outside. 290
- 1572 Smith, Wm. M., West Meriden, Conn.—Casket trimmings, handles, name plates, and ornaments. N 43. 290
- 1573 Rogers, C., & Bros., West Meriden, Conn.—Gold and silver plated coffin and casket trimmings. F 72. 290
- 1574 Chase, F. & P. F., Penn Galvanic Works, Philadelphia, Pa.—Galvanized iron goods, sheet iron, water pipe, boilers, hardware, shipsmithing, railings; bar, hoop, and chain iron. P 68. 291
- 1574a Danby, Geo., & Co., Philadelphia, Pa.—Galvanized sheet iron, mantels, cornices, railings, etc. Y 59. 291
- 1575 Straus, J. E., & Co., Philadelphia, Pa.—Galvanized, wrought, and cast iron work. P 71. 291
- 1577 Philadelphia Galvanising Co., Philadelphia, Pa.—Galvanized sheet iron pipe, railing, wirework, chairs, boilers, sinks, coal hods, etc. P 69. 291
- 1578 Kittredge Cornice & Ornament Co., Salem, O.—Sheet metal cornices, doors, shutters, and pavilion; architectural ornaments, light wrought iron work. (*Outside.*) 291
- 1579 Falstrom & Tomqvist, Passaic City, N. J.—Galvanized iron cornice and ornamental sheet iron work for buildings. P 68. 291
- 1580 Philadelphia Architectural Iron Co., Philadelphia, Pa.—Galvanized iron and sheet zinc gate entrance. P 70. 291
- 1581 McCullough Iron Co., Philadelphia, Pa.—Galvanized sheet iron. P 70. 291
- 1582 Brown & Owen, Philadelphia, Pa.—Cemetery inclosure, ornamental iron work, and wrought iron pipe. (*Outside.*) 291
- 1583 Cornell, J. B. & J. M., 141 Centre street, New York, 9 Studio Buildings, Boston, 427 Walnut street, Philadelphia.—All kinds of heavy and light wrought and cast iron work for buildings and bridges; cast iron fronts, stairs, columns, girders, lamp posts, etc.; wrought iron columns, girders, beams, railings, sheet lath, etc.; steel and iron rolling shutters, fire-proof columns, burglar proof safes and vaults. Works cover six acres of ground. P 70. 291
- 1584 Marshall Brothers & Co., Philadelphia, Pa.—Galvanized and leaded sheet iron work. P 71 and outside. 291
- 1585 Zinc Roofing & Ornamenting Works, Chicago, Ill.—Ornaments in pressed and cast zinc, brass, and copper; zinc statues, emblematic signs, etc. P 69. 291
- 1586 Buringer Brothers, Dayton, O.—Ohio coat-of-arms of galvanized iron. (*In gable of Ohio State Building.*) 291
- 1586a Smith, S. A., New York, N. Y.—Rolling chairs. (*In use in the buildings.*) 292

Carriages, Vehicles, and Accessories.

- 1587 Blake Bros. Hardware Co., New Haven, Conn.—Trucks for moving open barrels and kegs. P 69. 294
- 1588 Newichawanick Co., South Berwick, Me.—Horse blankets and goods for horse clothing. R 78. 296
- 1588a Hopkins & Robinson Manufacturing Co., Akron, O.—Animal pokes. 296
- 1589 Pettingell & Sawyer, East Cambridge, Mass.—Horse and wagon covers. F 76. 296
- 1590 Eager, P. B., Tower, & Co., Boston, Mass.—Oiled horse covers. C 78. 296
- 1593 Faxon, E., & Co., Philadelphia, Pa.—Wool extract. P 43. 667

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

GREAT BRITAIN.

(North of Nave, Columns 23 to 38.)

Chemical Manufactures.

Chemical Manufactures.

- 1 Hutchinson, John, & Co., Widnes, Lancashire.—Soda ash, soda crystals, caustic soda, bicarbonate of soda, salt cake, bleaching powder, and sulphur recovered from vat waste. 200
- 2 Corbett, John, Stoke Prior Salt Works, Worcestershire.—Refined salt. 200
- 3 Richards, Kearne, & Gasquoine, Malkins Bank Alkali Works, Sandbach, Cheshire.—Brine, sulphate of ammonia, soda ash, bicarbonate of soda. 200
- 4 Gaskell, Deacon, & Co., Widnes, Lancashire.—Carbonated soda ash, and refined alkali, bleaching powder, soda crystals, bicarbonate of soda, and chloride of calcium. 200
- 5 Brunner, Mond, & Co., Northwich, Cheshire.—Alkali or carbonate of soda. 200
- 6 The Desoto Alkali Co. (limited), Widnes, Lancashire.—Caustic soda, and black ash or ball soda. 200
- 8 Runcorn Soap & Alkali Co. (limited), Liverpool.—Bleaching powder, soda ash, crystals of soda, caustic soda, and refined resin. 200
- 9 Muspratt Bros. & Huntley, Liverpool.—Soda ash, caustic soda, bleaching powder, soda crystals, and bicarbonate of soda. 200
- 10 Muspratt, James, & Sons, Liverpool.—Soda ash, cream caustic soda, bleaching powder, chlorate of potash, salt cake, and brimstone. 200
- 12 Spence, Peter, Manchester.—Crystallized alum, in block and crystals, and a new aluminio-ferric compound for precipitating sewage and for paper making. 200
- 13 Higgin, Thomas, & Co., Liverpool.—Salt. (*Agricultural Hall*). 200
- 14 The Newcastle Chemical Works Co. (limited), Newcastle-on-Tyne.—Soda ash, alkali, bleaching powder, crystals and bicarbonate of soda, caustic soda, chloride of calcium. 200
- 15 White, John & James, Shawfield Works, Glasgow.—Bichromate of potash. 200
- 16 Liver Alkali Works Co. (limited), Liverpool.—Caustic soda. 200
- 17 Young, James, Kelly, Wemyss Bay, N. B.—Illustrations of manufacture of carbonate of soda, chlorate of potash, products from petroleum, coal, and shale, preservation of iron ships. 200
- 18 Greenbank Alkali Co., St. Helen's, Lancashire.—Chemical products, pure caustic soda, chlorate of potash. 200
- 20 Jennings, T., Brookfield Chemical Works, Cork.—Carbonate of and calcined magnesia. 200
- 21 Calvert, F. C., & Co., Bradford, Manchester.
a Carbolic and cresylic acids and derivatives. 200
b Carbolic acid soaps. 201
- 22 Parkinson Bros., Burnley.—Baking-powder. 200
- 23 Morson & Son, London.—General chemicals and specialties, creosote, pepsine, gelatine, etc. 200
- 24 Allen & Hanburys, London.—Pâté de jujube and analogous articles. 200
- 25 Gerrard, Alfred William, London.—Pharmaceutical preparations. 200
- 26 Chance Bros., Alkali Works, near Birmingham.—Chemical products. 200
- 27 Wyndham, F., & Co., London.—"Esprit des Oufs" (spirit of eggs), a medicinal compound. 200
- 28 Price's Patent Candle Co. (limited), Belmont Works, London.—Candles, night-lights, glycerine, fatty acids, machinery oils; toilet, household, and mill soaps, glycerine, paraffine, stearine, and tapers. 201
- 29 Field, J. C. & J., London.—Candles, toilet soaps, beeswax, and refined yellow wax, white wax, dyers' soaps, sealing wax, and fancy ornamental candles. 201
- 30 Pears, A. & F., Lanadron Soap Works, Isleworth, near London.—Transparent soap. 201
- 31 Wright & Holdsworth, London.—Dog soap, worm powders, Bauer's baby soap. 201
- 32 Cohné, Sigismund, London.—Chemical and medical soaps. 201
- 33 Craig & Rose, Caledonian Oil & Color Works, Edinburgh.
a Oils. 201
b Paints and colors. 202

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

PRIZE MEDAL,



LONDON, 1862.

BARLOW & JONES,

LIMITED,

Spinners, Printers & Manufacturers
by Patent,

SILVER MEDAL,



PARIS, 1867.

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and the easiest to load.



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MILL HILL WOOL & RAG EXTRACTING COMPANY, LIMITED, HUDDERSFIELD,**

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and the manner in which they are manipulated, goods manufactured with these Wools are not subject to
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VITRIFIED BLUE BRICKS, COPINGS, TILES, PIPES,

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MANUFACTURERS OF

NEEDLES, SEWING MACHINE NEEDLES,

FISH HOOKS AND FISHING TACKLE,

ABBAY MILLS, REDDITCH, ENGLAND.

Prize Medals—London, Paris, Berlin, Boulogne, & Bergen.

Chemicals, Ceramics.

- 34 Williams, Miles, Britannia Varnish Works, Wigan, Lancashire.
 a Gas carburettor and drawings; improvement in manufacture of gas and liquid fuel. 201
 b Varnishes, varnish paints, enamels, lacquers, and specimens of work. 202
- 35 Hickisson, Mrs. M. A., London.—Marking ink, pens, linen stretcher, and framed specimens. 202
- 36 Turner, Chas., & Son, London.—Varnishes, fine colors, gums. 202
- 38 Lyons, William, Manchester.—Writing and copying fluids and inks, marking ink, ink powders, paper dye tables. 202
- 39 Bowman, Charles, London.—Solid ink, stencil plates, stencil brushes, etc. 202
- 40 Rawlins & Son, Brook Works, Prescott.—Ultramarine and smalts, with raw materials. 202
- 41 Chambers, T. F., Hull.—Black varnish. 202
- 42 Johnson Bros., Hull.—Colors, varnishes, machinery oils, and locomotive and anti-friction greases. 202
- 44 Rowney, George, & Co., London.—Pigments, colors, varnishes, artists' materials. 202
- 46 Storer, David, & Sons, Glasgow.—Colors, pigments, and wood stains; Venetian, Indian, and other reds; drop black, greens, and other pigment colors. 202
- 48 Cooper & Co., London.—Writing, register, and japan inks, copying and fluid ink; red, scarlet, blue, and violet inks. 202
- 47 Silicate Paint Co., Liverpool.—Silicate paints and colors; petrifying liquid for damp walls; enameling and anti-fouling paints; cement for steam joints, anti-incrustation fluid, nitre killer, etc. 202
- 47a Young & Strang, Glasgow.—Gums for calico printing. 202
- 48 Blackwood, John, & Co., London.—Writing, copying, and indelible marking inks. 202
- 49 Mackay, John, Edinburgh.
 a Spirit varnishes and polishes for coating wood of all colors, white, mahogany, oak, or ebony. 202
 b Fluid flavoring essences from spices, fruits, and vegetables. 203
- 50 Stephens, Henry Charles, London.—Writing fluids and copying inks, ink powders, machine ruling and indorsing inks; stains for wood. 202
- 51 Crown Perfumery Co., London.—Perfumes and toilet requisites. 203
- 52 Brooks, Henry, & Co., London.—Perfumery. 203
- 53 Atkinson, J. & E., London.—Perfumery and toilet articles. 203
- 54 Jaap, John, Glasgow.—Flavoring essences and other preparations. 203
- 55 Low, Son, & Haydon, London.—Perfume extracts, toilet soaps. 203
- 56 Perks, Samuel, Hitchin Herts.—Essential oil of lavender, extract lavender flowers, etc. 203
- 57 Thiellay, Eugene Henry, London.—Hair tincture, dyes, and bleaching liquid, tonics, and cultivators. 203
- 58 Rimmel, Eugene, London.—Perfumery and toilet articles; perfume vaporizers, etc. 203
- 59 Evans, Sops, & Co., Liverpool, and Evans, Leathers, & Evans, London.—Perfumery. 203
- 59a Sturge's Montserrat Co. (limited), Broad street, Birmingham.—Essences. 203
- 60 Bryant & May, Fairfield Works, London.—Safety matches, wax vestas and vesuvians, decorated metal and other boxes. 204
- 62 Bickford, Smith, & Co., Tuckingmill, Cornwall.—Safety fuses for blasting operations. 204
- 63 Pigou, Wilks, & Laurence (limited), London.—Military, sporting, African, and mining powders of every description. 204
- 64 Lacey, Richard George, Coast Guard Station, Leigh, Essex.—Rocket apparatus for throwing lines from one ship to another. 205

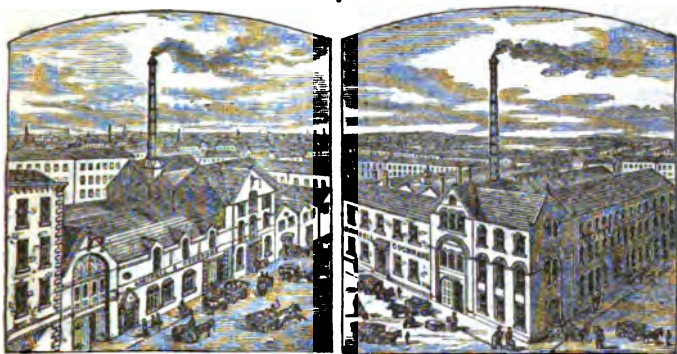
Ceramics—Pottery, Porcelain, Glass, etc.

- 65 Peake, Thomas, The Tileries, Tunstall, Staffordshire.
 a Paving and facing bricks. 206
 b Ridge, roofing, and flooring tiles; ornamental tiles for garden borders, skirtings, and mural decorations. 206
- 66 Hamblet, Joseph, Piercy Blue Brick Works, West Bromwich, Staffordshire.
 a Vitrified blue bricks, copings, plinths, stable floor bricks, and quarries. 206
 b Ridges, roofing tiles, and terra metallic pavings. 206
- 67 Wood & Ivory, Albion Brick Works, West Bromwich, Staffordshire.—Blue terra metallic building and fancy bricks; mouldings, copings, footpath paving bricks, grooved stable floor bricks, terminals; terra metallic vases, trusses, etc. 206
- 68 Johnson & Co., Ditchling Potteries, Sussex.—Terra-cotta as applied to building purposes; terminals, vases, ridge tiles, and general terra-cotta work. (*Agricultural Hall.*) 206
- 69 Matthews, John, Royal Pottery, Weston-super-Mare, Somerset.—Terra-cotta vases, fountains, and baskets; garden pottery, etc. 206
- 70 Watcombe Terra-Cotta Co. (limited), Watcombe, South Devon.—Terra-cotta, painted vases and plaques, statuettes, etc.; frescoes for mural adornment, and architectural terra-cotta specimens. 206
- 71 Brooke, Edward, & Sons, Fieldhouse Fire Clay Works, Huddersfield, Yorkshire.
 a Sanitary tubes. 206
 b Fire bricks and clay for furnaces; sewer ventilators; silica fire bricks for furnaces. 207

Ceramics.

- 72 Stiff, James, & Sons, London.**
a Terra-cotta jars, bottles, tiles, vases, medallions, water filters, refrigerators, air bricks, stoves, and stove linings, tablets with figures in bas-relief, figures for church and other decorations; sanitary ware, sewer traps, drain pipes, etc. 206
b Terra-cotta stoves and stove hinges. 207
c Tiles. 208
d Chemical stoneware, water filters, refrigerators, etc. 210
- 73 Jennings, George, London.**—Appliances for ventilation, terra-cotta bricks, etc.; stoneware drain pipes, gully traps. 206
- 74 Holland, William Thomas, Yrismudw, South Wales.**
a Architectural terra-cotta, bricks and tiles, sanitary pipes and ware. 206
b Fire bricks and fireproof cements. 207
c Ceramic goods, earthenware, or faience, in table, tea and toilet services, etc. 213
- 75 Lindsay & Anderson, Lilliehill Fire Clay & Terra-Cotta Works, Dunfermline, Scotland.**
a Fountain in terra-cotta, bust and pedestal of Sir Walter Scott, statuette of Sir James Y. Simpson, nymphs at fountain, garden vases and pedestals, sewage pipes and sanitary appliances, collection of terra-cotta. 206
b Gas stove in terra-cotta, fire-clay bricks, chimney cans. 207
- 76 Doulton, Hy., & Co., London.**—Terra-cotta goods for architectural purposes; sanitary pottery in salt-glazed stoneware, queensware; vitrified metallic bricks and pavings. 206
- 76a Eastwood & Co., (limited), London.**
a Building, paving, ornamental, and fire bricks; Staffordshire blue bricks, grooved paviers. 206
b Red paving and roofing tiles; ridges and clinkers. 208
- 77 Brownhills Pottery Co., Tunstall.**
a Terra-cotta and black glazed ware. 206
b Floor and roof tiles, ridge ornaments, etc. 208
c Jugs. 210
d Earthenware dinner, dessert, and toilet ware. 213
- 78 Dean, Henry, Rugby, Warwickshire.**—Stoneware drain traps and yard gullies of different patterns. 206
- 78a Maw & Co., Benthall Works, Broseley, Shropshire.**
a Architectural majolica, and terra-cotta. 206
b Geometrical mosaic, encaustic, and majolica tiles. 208
- 79 Tinworth, George, London.**—Panels in terra-cotta, illustrative of Scripture, and articles in colored stoneware. 206
- 79a Daniell, A. B., & Son, London.**
a Porcelain and pottery, ornamental vases, candelabra, etc.; fountains, jardinières, garden seats, vases, etc. 206
b Dinner, dessert, tea, and coffee services; toilet services. 213
- 80 Harper & Moores, Stourbridge.**—Fire clays, prepared clays, fire bricks, crucibles, melting pots, bricks for smelting furnaces, etc. 207
- 81 Cliff, John, Runcorn, near Liverpool.**—Fire brick. 207
- 82 Patent Plumbago Crucible Co., Battersea Works, London.**—Portable furnaces; skittle pots for glass melting; crucibles for jewelers, assayers, dentists, etc.; founders' blacking. 207
- 83 Price, J. & C., & Bros., Bristol.**—Ale bottles, spirit jars, barrels, preserve jars, water filters, foot warmers, etc.; stoneware. 207
- 84 Bates, Walker, & Co., Dale Hall Works, Burslem.**
a Ironmongers', artists', and gardenware; earthenware goods; signboard letters. 209
b Spirit barrels. 210
c Dinner, dessert, toilet, and tea ware; porcelain slates, menu tablets, etc. 213
- 85 Doulton & Co., London.**—Man-
 telpieces, stoves, hearth, and fenders of clay; crucibles, furnaces, muffles, in fire clay and plumbago. 207
- 86 King Bros., Stourbridge.**—Fire brick, gas retorts, etc. 207
- 88 Davidson, T., Jr., & Co., Caledonian Pipe Works, Glasgow.**—Clay tobacco pipes; white clay pipes, fitted with fancy mouthpieces and cases. 207
- 88a Doulton & Watts, Lambeth Pottery, London.**
a Stoneware for chemical works. 207
b Tile decorations. 208
c Stoneware for manufacturing purposes; pulpit and font in fine art pottery faience. 209
d Stoneware for domestic purposes. 210
- 89 The Campbell Brick & Tile Co., Stoke-upon-Trent.**—Encaustic, geometric, majolica, and all kinds of glazed tiles and mosaics, bricks, and roofings. 208
- 90 Craven, Dunill, & Co., Jackfield Works, near Ironbridge, Shropshire.**—Tiles for pavements and hearths; ornamental plays for fireplaces; tiles for walls and furniture. 208
- 91 Minton, Hollins, & Co., Minton's China Works, Stoke on Trent.**—Tiles, tile-mosaic, tile fender, chimney piece, fire grate, flower vases, etc. 208
- 92 Stanley Bros., Midland Tile Works, Nuneaton, Warwickshire.**—Perforated tiles for malt kiln floors. 208
- 93 Brown-Weathead, T. C., Moore, & Co., Cauldon Place, Staffordshire Potteries.**
a Tiles and sanitary ware. 206
b China, earthenware, statuary, porcelain, and majolica ware. 209
c Druggists' and perfumers' goods. 210
d Dinner, dessert, and toilet services. 213
- 93a Matthews, Edward, & Son, London.**—Decorative tiles. 208
- 93b Minton China Works, Stoke upon Trent.**—Enameled tiles, etc. 208
- 93c Colthurst, Symons & Co., Bridge-water.**—Bricks and tiles. (*In Agricultural Hall.*) 208
- 94 Brownfield, Wm., & Son, Cobridge, Staffordshire Potteries.**—China, majolica, ironstone china, parian, earthenware, stoneware, etc. 210
- 95 Edwards, J., & Son, Burslem, Staffordshire.**—Ironstone whiteware. (*In Agricultural Hall.*) 210

CANTRELL & COCHRANE'S GINGER ALE &



Works DUBLIN, Ireland.

IRELAND.

Works BELFAST, Great Britain.

MINERAL WATER MANUFACTORIES

FIVE PRIZES, PARIS EXHIBITION, 1867.

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TO MERCHANTS, DRAPERS, & TAILORS

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GOODALL'S BAKING POWDER

THE BEST IN THE WORLD.

The cheapest because the best, and indispensable to every household, and an inestimable boon to housewives. Makes delicious Puddings without eggs, Pastry without butter, and beautiful light Bread without yeast. Sold by Grocers, Oilmen, Chemists, &c., in 1d. Packets: 6d., 1s., and 2s. Tins.

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THE MOST DELICIOUS SAUCE IN THE WORLD.

This cheap and excellent Sauce makes the plainest viands palatable, and the daintiest dishes more delicious. To Chops and Steaks, Fish, &c., it is incomparable. Sold by Grocers, Oilmen, Chemists, &c., in Bottles, 6d., 1s., and 2s. each.

Prepared by GOODALL, BACKHOUSE & CO., LEEDS.



GOODALL'S QUININE WINE.

The best, cheapest, and most agreeable tonic yet introduced. The best remedy known for Indigestion, Loss of Appetite, General Debility, &c. Restores delicate invalids to health and vigour. Sold by Chemists, Grocers, &c., at 1s., 1s. 1/4d., 2s., and 2s. 3d. each Bottle.

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DR. HASSALL'S FOOD FOR INFANTS, CHILDREN, AND INVALIDS.

DR. ARTHUR HILL HASSALL, M.D. the inventor, recommends this as the best and most nourishing of all Infants' and Invalids' Foods which have hitherto been brought before the public. It contains every requisite for the full and healthy support and development of the body, and is, to a considerable extent, self-digestive. Recommended by the "Lancet," and Medical Faculty, &c. Sold by Druggists, Grocers, Oilmen, &c., &c., in Tins, 6l., 1s., 2s., 3s. 6d., 6s., 1/2s., and 2s. each. A Treatise by Arthur Hill Hassall, M.D., London, on the "Alimentation of Infants, Children, and Invalids, with hints on the general management of children," sent post free on application to the

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Havre, 1868; Beauvais, 1869; Marseilles, 1874;
Paris, 1875;

AND SEVERAL HONOURABLE MENTIONS.



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ANDERSON'S PREPARED ROOFING FELT,

Ready Coated and Sanded, especially for HOT CLIMATES.

BLOOD, WOLFE & CO.'S

XXX DUBLIN STOUT

AND

PALE ALES,

LIVERPOOL AND LONDON, ENGLAND.

Agents in all principal cities in the United States.



Ceramics, Furniture.

- 96a Gardner, Peter, Dunmore Pottery, by Sirling, Scotland.—Rockingham teapots. 210
- 97 Edwards, John, Fenton, Staffordshire.—Ironstone china and porcelain terre tea, dinner, toilet, and jug services. (*In Agricultural Hall.*) 213
- 98 Bailey, W. & J. A., Alloa, Scotland.—Rockingham earthenware teapots. 213
- 98a Powell & Bishop, Hanley, Staffordshire.—Dinner, dessert, tea, and toilet services, white granite, etc. 213
- 99 Hetley, J., & Co., London.—Glass shades: glass used for photographic, building, and horticultural purposes. 214
- 100 Chance Bros., & Co., Glass Works, near Birmingham.—Glass for optical instruments. 214
- 101 Kilner Bros., London.—Glass bottles and glass, for useful and scientific applications. 215
- 107 Aire & Calder Glass Bottle Co., London.—Glass bottles, combination stoppers, packing cases, corks, straw envelopes. 215
- 108 Green, James, & Nephew, Thames Cut Glass Works, London.—Table glass, cut and engraved table decorations and flower stands, glass chandeliers, and lustre candlesticks. 216
- 109 Millar, John, & Co., Edinburgh.—Engraved and cut glass. 216
- 109a Jenkinson, Alexander, Edinburgh.—Venetian glass in antique shapes. 216
- Furniture and Objects of General Use in Construction and in Dwellings.**
- 110 Cox & Sons, London.—Chimney piece, embroidered mantel board, ebonyized corner cupboard, carved oak furniture, bronze ornament, stained glass church window, wrought iron pulpit body, lecterns, church plate, wrought iron and brass work, art tiles and plaques; the challenge prize of the National Musical Union, etc. 217
- 110a Turner, George, & Co., London.
a Hammock bedstead and sofa, mosquito curtains. 217
b Camp oven. 222
- 111 Wright & Mansfield, London.—Cabinet furniture of the 18th century. 217
- 112 Hems, Harry, Exeter.—Alabaster statue; carved oak chest made out of ancient beams (nearly 600 years old) from the choir of Salisbury cathedral. 217
- 113 Peyton & Peyton, Bordesley Works, Birmingham.—Metallic bedsteads. 217
- 114 Morton, W. Scott, & Co., Art Furniture Works, Edinburgh.—Decorative furniture, ebonyized and decorated cabinet, sideboard. 217
- 115 Hart, Son, Peard, & Co., London.
a Artistic metal work (chiefly for ecclesiastical purposes), stove grates, etc. 217
b Stove grates, etc. 222
c Gas fixtures. 223
- 116 Shoolbred, James, & Co., London.—Furniture in the Jacobean and Queen Anne styles; bedroom furniture in the Anglo-Indian style; curtains and carpets. 217
- 116a White, William George, London.—Steel safe. 217
- 117 Barnard, Brady, London.—Furniture and hammock. 217
- 118 Cooper & Holt, London.—Furniture, sideboard, portion of bedroom suite, decorative drawing-room furniture. 217
- 119 Phipson, Miss Emma, Monk Sherborne, Basingstoke, Hants.—Sideboard, ladies' work table, dressing glass, and candlesticks. 217
- 119a Chatwood, Samuel, London.—Fire and burglar proof safes. 217
- 120 Ward & Co., London.—Bear arranged as dumb waiter to hold tray and lamp. 217
- 122 Arthur, Frederick, London.—Cabinet work and fittings for Royal School of Art needlework exhibits. 217
- 123 Wethered, Edwin Robert, Woolwich, Kent.
a Hammock. 217
b Friction pulley block, exhibited as a fire-escape. 227
- 124 Matthews, Edward, & Son, London.—Stained glass windows, mural brasses. 217
- 125 Barnard, Bishop, & Barnards, Norfolk Iron Works, Norwich.
a Stoves. 222
b Mangles. 225
c Ornamental wrought and cast iron gates, palisade, pavilions, etc. 710
d Lawn mowers, hose reels, garden rollers, and iron garden requisites. 720
- 125a Howard & Sons, London.—Household furniture. 217
- 126 Singer, J. W., & Son, Frome, Somerset.—Artistic metal work, altar crosses and candlesticks, alms dishes, and mural brass plates for churches. 217
- 126a Sage, Frederick, London.—Air-tight show cases, velvet show stand, etc. 217
- 127 Knight, Miss Mary, London.—Bedstead. 217
- 128 Jeffreys, Charles, London.
a Show cases, bronzed shop fittings, and show stands. 217
b Cut glass mirrors. 219
c Reflecting lamps. 223
- 129 Royal School of Art Needlework, London.—Artistic needlework and embroidery in applique, crewels, and silk. 217
- 130 MacIntosh, James, London.—Decorative doors and panels; imitations of woods and marbles, decorative designs and paper-hanging. 217
- 130a Collmann, L. W., London.—Piano in carved satinwood case, etc. 217
- 130b Watson & Son, Bombay, East India.—Indian furniture, etc. 217
- 131 Collinson & Lock, London.—Furniture, wall papers, and textile fabrics in the old English style. 217
- 131a Neal, John, London.—Table ware. 218
- 132 Goggin, Jeremiah, Dublin.
a Table ornaments, drinking cups, tankards, etc. 218
b Mirrors. 219

Table Furniture, Heating and Lighting Apparatus, Woven Goods.

- 133 Bailey, W. & J. A., Alloa, Scotland.—Engraved table glass. 218
- 133a Gill, James, London.—General engraving on metals, etc. 218
- 134 Elkington & Co., Birmingham.
 a Solid silver and electro-silver plate for domestic use; decorative table plate relieved with electro-gold and oxidized silver. 218
 b Cloisonné and champlevé enamels on silver and copper. 413
 c Works of art in gold, silver, and other metals; bronzed statuary. 443
 d Antique art treasures, in metal, from the South Kensington Museum. 454
- 137 Kent, George Barton, & Co., London.
 a Ivoride mirrors. 219
 c Photograph stands. 220
- 138 Engert, A. C., & Co., London.—Ornamental mouldings for picture frames and architectural decorations. 220
- 139 Hieronimus, W., London.—Frame mouldings, window cornices, decorating mouldings, etc. 220
- 140 Heaps & Wheatley, Brotherton, Yorkshire.—Oil cooking stove, gas stove, water boilers, etc. 222
- 143 Steel & Garland, Wharnccliffe Works, Sheffield.—Steel grates, with porcelain tiles; fenders, encaustic tile hearths, stoves with china tiles, fire irons, etc. 222
- 144 Smart, Walter, Buckhurst Hill, Essex.—Sub-fire oven. 222
- 146 Feetham, Mark, & Co., London.—Stoves and grates with appliances; decorated china for fireplaces. 222
- 147 Perkins, A. M., & Son, London.—Steam oven for marine use. (*In Machinery Hall.*) 222
- 148 Thornton, Ebeneser, Bradford, Yorkshire.—Cooking stove for gas or solid fuel. 222
- 148a Clay, Randolph, London.—Flexible gas tubing. 223
- 149 Gardner, John, & Sons, London.—Lamps, Arctic expedition lamps, traveling canteens. 222
- 150 Field, J. C. & J., London.—Night lights and candle guard. 223
- 151 Partridge & Co., Birmingham.—Brass gaseliers, brackets, etc. 223
- 152 Skelton & Co., London.—Street lamp, with reflectors. 223
- 152a Kent, George, London.—Knife-cleaning machine. 224
- 153 Etzenberger, R. Z., London.—Patent coffee filter, etc. 224
- 153a Cheavin, George, Boston, Lincolnshire.—Water filters. (*In Agricultural Hall.*) 226
- 154 Jennings, George, London.—Lavatories, baths, closets, urinals, and latrines; water meters and water waste preventors. 226
- 155 Bullivant, Thomas, London.—Sash window. 227
- 156 Edwards, G., London.—Sliding window sashes and frame. 227
- Yarns and Woven Goods of Vegetable or Mineral Materials.**
- 157 Brown, J. B., & Co., London.—Galvanized wire netting for inclosing poultry, pheasants, dogs, etc. (*In Agricultural Hall.*) 228
- 157a Engert & Rolfe, London.—Felts for roofing, fibrous asphalt, etc. (*In Agricultural Hall.*) 235
- 158 Greening, N., & Sons, Warrington.—Woven wire. (*In Agricultural Hall.*) 228
- 158a McTear & Co., Belfast, Ireland.—Roofing, ship sheathing, and inodorous felt; model of roof. 228
- 159 Cox Bros., Camperdown Linen Works, Dundee, Scotland.—Jute yarns, twines, etc. 229
- 160 Sandeman, Frank Stewart, Manhattan Works, Dundee, Scotland.—Linen and jute yarns, carpet yarns, burlaps, baggings, canvas paddings, scrim cloth, horse covers, and lap robes. 230
- 161 Laird, William, & Co., Canmore Linen Works, Forfar, Scotland.—Textile fabrics, washed damasks, fancy towelings, horsecloths, sheetings, osnaburgs, stair covering, seamless bags, hessians, striped beddings, paddings, ducks, buckram, etc. 230
- 162 Johnson, James, & Fildes, Manchester.
 a Quilts and bedcovers, toilet or bureau covers, brocades, damasks, dimities, muslins. 230
 b Printed cretons, towels, dress fabrics, etc. 232
- 163 Dewhurst, John, & Sons, Belle Vue Mills, Skipton, Yorkshire.—Sewing cotton, finished and in various stages of manufacture. 230
- 164 Brook, Jonas, & Bros., Meltham Mills, Huddersfield.—Spool cotton, white and colored; crochet and embroidery cotton. 230
- 164a Greenmount Spinning Co., Greenmount Factory, Dublin.
 a Cotton goods for domestic and clothing purposes. 230
 b Linen goods. 233
- 165 Neilson, Storer, & Sons, Thorn Mills, Johnstone, near Paisley.—Yarns; knitting, mending, and other cottons; yarns for lace, curtain, and fancy dress manufacturers. 230
- 165a McBride, Robert, & Co., Belfast.
 a Cotton goods. 230
 b Mixed cotton and linen goods. 233
- 166 Clark, John, jr., & Co., Glasgow, Scotland.—Spool cotton. 230
- 167 Swainson, Birley, & Co., Fishwick Mills, Preston.—Bleached cotton fabrics. 230
- 167a Turner, George, & Co., London.—Tent. 230
- 168 Barlow & Jones (limited), Manchester.—Toilet quilts, covers, and mats; cloakings, cotton towels, blankets, alhambras, and counterpanes, plain and fancy muslins, etc. 230

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

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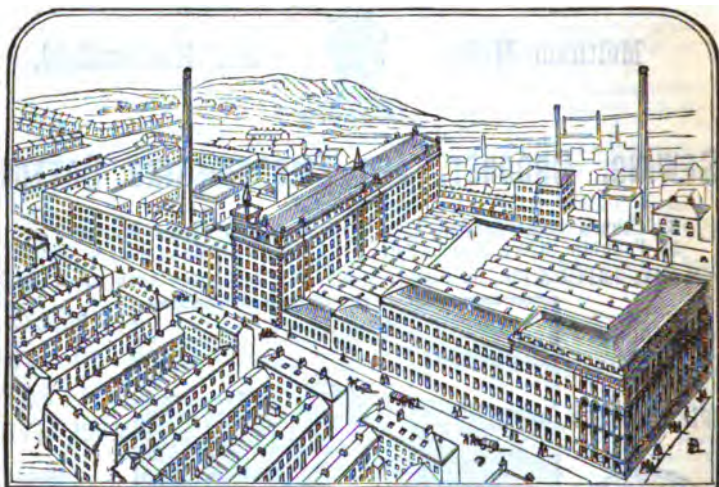
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LONDON	2, Russia Row, Milk Street.
MANCHESTER	12, Piccadilly.

Woven Goods.

- 168a Briggs, J. F., & Co., Huddersfield, Yorkshire.—Drills and ducks. 230
- 169 Ashworth, Edmund, & Sons, Eger-ton Mills, Bolton, Lancashire.—Cotton in various stages of manufacture; yarns, sewing cottons; crochet, embroidery, knitting, mending, and glove cottons, linen finish thread. 230
- 170 Pearson, Thomas, & Son, Victoria Mills, Little Bolton.—Quilts, quiltings, toilet covers, and mats. 230
- 171 Hawkins, John, & Sons, Manchester.—Plain and twilled calicoes and prints. 232
- 172 Ferguson Bros., Holme Head Works, near Carlisle.—Sateens. 232
- 173 Schwabe, Salis, & Co., Manchester.—Cotton prints for garments, chintzes, and furniture. 232
- 174 Simpson & King, Manchester.—Printed cotton furniture fabrics. 232
- 175 Marshall & Co., Leeds.—Linen sewing threads. 233
- 176 Normand, James, & Sons, Dysart, Fifeshire, Scotland.—Linsens for house-keeping, shoe linings, etc. 233
- 177 Ewart, William, & Sons, Belfast, Ireland.—Linen fabrics. 233
- 178 The York Street Flax Spinning Co. (limited), Belfast.—Linen piece goods, drills, ducks, sheetings, shirtings, and frontings. 233
- 179 Matier, Henry, & Co., Belfast.—Bleached and printed linsens; handkerchiefs, plain, hemstitched printed, and embroidered. 233
- 180 Ainsworth, Thomas, Cleator Mills, Cleator, Cumberland.—Linen threads and towels. 233
- 181 Ullathorne & Co., London.—Shoe and saddlers' threads. 233
- 182 Fenton, Connor, & Co., Linen Hall, Belfast.—White linsens, cambric, table linsens, linen ducks, drills, etc.; printed shirtings and lawn dress goods. 233
- 183 Brown, John S., & Sons, Belfast.—Table linen, diapers, sheetings, shirting linen, lawns, linen and cambric handkerchiefs. 233
- 184 Richardson, J. N., Sons, & Owden, Belfast.—Linen goods. 233
- 185 Dicksons, Ferguson, & Co., Belfast.—Linsens bleached and unbleached. 233
- 186 Dunbar, McMaster, & Co., Gilford, Ireland.—Linen threads. 233
- 187 Nairn, Michael, & Co., Kirkaldy, Scotland.—Floor oil cloths. 234
- 188 Corticine Patent Floor Covering Co., London.—Floor covering. 234
- 189 Hall, Thomas, Edinburgh.—Hand painted cloths in imitation of tapestry, for wall decoration. 234
- 190 Wellock, J., & Co., Bradford, York-shire.—Waterproof materials for cart and wagon covers. 234
- 195 Boulinton Floor Cloth Manufac-turing Co. (limited), Manchester.—Floor cloth. 234
- Woven and Felted Goods of Wool, etc.**
- 196 Andrews, Henry, & Co., Leeds.—Worsted coatings, wool and union cloths, and wool meltons. 235
- 197 Brown, John S., & Sons, Belfast.—Yarns. 235
- 198 Hooper, Charles, & Co., Eastington Mills, Stonehouse, Gloucestershire.—Woolens, broadcloths, military cloths, doeskins, beavers, elysians, kerseys, mel-ton, coatings, and trowserings. 235
- 199 Salter, Samuel, & Co., Home Mills, Trowbridge, Wiltshire.—Trowserings and coatings. 235
- 200 Dunbar, McMaster, & Co., Gil-ford, Ireland.—Gray and bleached yarns. 235
- 201 Mahony, Martin, & Bros., Blar-ney, Ireland.—Tweeds, boating serge, worsted coatings, railway traveling wraps. 235
- 202 Anderson, David, & Son, Lagan Felt Works, Belfast, Ireland.—Roofing, flooring, and ship sheathing felt, lining felt, hair felts for covering boilers and steam pipes. (*In Machinery Hall.*) 235
- 203 Bliss, William, & Son, Chipping Norton, Oxon.
a Tweeds, woolen serges, and saddlers' woolens. 235
b Shawls. 337
c Mauds and rugs. 239
- 204 Brigg, J. F., & Co., Huddersfield, Yorkshire.—Beavers, coatings, cheviot, cassimeres, carriage and livery cloths, doeskins, elysians, meltons, kerseys, pilots, rugs, vestings and quiltings, velvets, union cloths, witneys, and reversi-ble coatings. 235
- 205 Carr, Isaac, & Co., Twerton Mills, Bath.—Woolen cloths, meltons, twills, beavers. 235
- 206 Bubb & Co., Southfields Mills, near Stroud.—Woolen cloths; billiards, gov-ernment, and piano cloths. 235
- 207 Marling & Co., Ebley and Stanley Mills, Stroud, Gloucestershire.—Raw, scoured, and dyed wool; woolen cloths, beavers, venetians, doeskins, deerskins, cassimeres, etc. 235
- 208 King, William, Gilroyd and Albert Mills, Morley, Leeds.—Union and melton cloths. 235
- 209 Birchall, J. D., & Co., Burley Mills, Leeds.—Woolen and worsted goods. 235
- 211 Hargreaves & Nusseys, Farnley Low Mills, Leeds.—Coatings, overcoat-ings, kerseys, meltons, woolen cloths. 235
- 213 Davies, Robert S., & Sons, Stone-house Mills, Gloucestershire.—Cloths, doeskins, venetians, meltons, coatings, beavers, etc. 235
- 214 Little, T. W., & Co., Leeds.—Man-tle cloths, waterproof tweeds, twills, mel-ton, blue and black deerskins, and di-agonals. 235

Woven Goods, Silk, Clothing.

- 215 Jones, Pryce, Newtown, North Wales.**
 a Welsh flannel, homespun, tweeds, yarns, etc. 236
 b Shawls. 237
- 216 Buckley, Joseph, & Co., Moorcroft Mills, Delph, near Manchester.**—Shawls, raised fancies, Rob Roys, and shepherds. 237
- 217 Farmer & Rogers, London.**—Cashmere shawls. (*In Indian Section.*) 237
- 218 Buckley, J. E. & G. F., Linfitts Mill, Delph, near Manchester.**—Queensland and beaver shawls. 237
- 218a Hepworth, B., & Sons, New Wakefield Mills, Dewsbury, Yorkshire.**
 a Railway knee wrappers. 237
 b Rugs. 239
- 218b McGee, John G., & Co., Belfast, Ireland.**
 a Traveling wraps, shawls, etc. 237
 b Rugs. 239
- 219 Williams, E. G., & Co., Bradford, Yorkshire.**—Textile fabrics for dress goods. 238
- 220 Pim Bros. & Co., Dublin.**—Irish poplins, silk terries, and brocates. 238
- 221 Henderson & Co., Durham.**—Durham axminster. 239
- 222 Lewis, John, Halifax, Yorkshire.**—Brussels and Wilton carpets. (*British Offices.*) 239
- 223 Gregory & Co., London.**—Indian and Persian carpets. 239
- 224 Robinson, Vincent, & Co., London.**—Carpets and rugs. 239
- 225 Crossley, John, & Sons (limited), Dean Clough Mills, Halifax, Yorkshire.**—Carpets, rugs, sofa carpets, table covers, etc. 239
- 226 Tomkinson & Adam, Kidderminster.**—Axminster carpets. 239
- 227 Lapworth Bros., London.**—Carpets and rugs. 239
- 228 Templeton J. & J. S., Glasgow.**—Brussels and Wilton carpeting; silk and wool window curtains. 239
- 228a Welch, Margetson, & Co., London.**—Rugs. 239
- 229 Templeton, James, & Co., Glasgow.**—Axminster carpets, breadth carpeting, hearth rugs. 239
- 229a Tapling, Thomas, & Co., London.**—Tapestry. 239
- 230 Webb, Edward, & Sons, Worcester.**—Hair cloth for furniture covering, hair cloth paddings, curled hair, crinoline, hair cloth. 240
- 230a McLintock, James, & Sons, Barnsley, Yorkshire.**—Down quilts and pillows. 240
- 231 Wild, John, Greenfield Mills, Shaw, near Oldham.**—Cotton plush velvet-ec. 231
- Silk and Silk Fabrics.**
- 232 Sheldon & Fenton, London.**—Sewing silks, tailors' twist, machine silks, etc. 243
- 233 Rickards, Charles Ayscough, Bell Busk Mills, near Leeds.**—Sewing and machine silks, twists; embroidery, knitting, and crochet silks. 243
- 234 Milner, Wm., & Sons, Leek, Staffordshire.**—Sewing silks. 243
- 235 Ward, Anthony, & Co., Albion Silk Mills, Leek, Staffordshire.**—Silk threads. 243
- 236 Adams & Co., London.**—Knitting silks, filosele. 243
- 237 Hilditch, G. & J. B., London.**
 a Silk and silk fabrics. 245
 b Velvets. 248
- 238 Norris & Co., London.**—Silk for furniture and upholstery purposes. 246
- 238a Stewart, Moir, & Muir, Glasgow.**—Curtains for window and decorative purposes and for use in the British section. 246
- 239 French & Co., St. Mary's Mills, Norwich.**—Black crape. 247
- 239a Simon, May, & Co., Nottingham.**—Nets, Shetland scarfs, shawls, elastic webs, etc. 247
- 239b Welch, Margetson, & Co., London.**—Scarfs, ties, and silk handkerchiefs. 247
- 240 Stevens, Thomas, Stevengraph Works, Coventry.**—Jacquard loom at work; ribbons, neckties, sashes, badges, and emblematical regalia; navy hat ribbons, gold and silver lace, silk-centred sachets. 248
- 241 Heymann & Alexander, Nottingham.**—Nets, quillings, trimmings, etc. 249
- 242 Turner, Archibald, & Co., Leicester.**—Elastic fabrics, cords, and braids. 249
- Clothing, Jewelry, and Ornaments; Traveling Equipments.**
- 245 Morley, J. & R., London.**
 a Hosiery. 250
 b Gloves. 251
- 246 McLintock, James, & Sons, Barnsley, Yorkshire.**
 a Down quilts, skirts, jackets, and dressing gowns; dress improvers. 250
 b Slippers. 251
- 247 Welch, Margetson, & Co., London.**
 a Linen collars, shirtings, etc. 250
 b Umbrellas. 254
- 248 Sykes, Josephine, & Co., London.**—Corsets and ladies' belts. 250
- 249 Hitchcock, Williams, & Co., London.**—Costumes of mixed fabrics. 250
- 250 McGee, John G., & Co., Belfast, Ireland.**—Ulster overcoats and Irish homespun goods. 250
- 250a Connor, Mrs., Dublin.**—Patchwork quilt. 250

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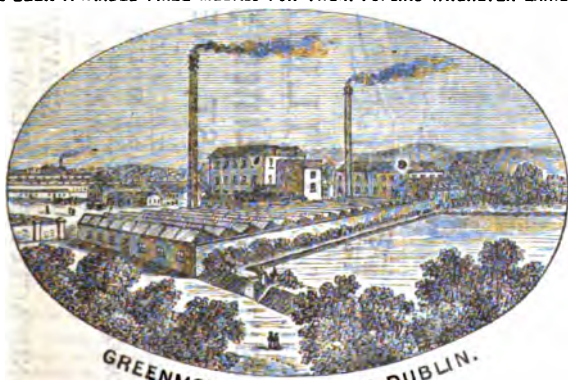
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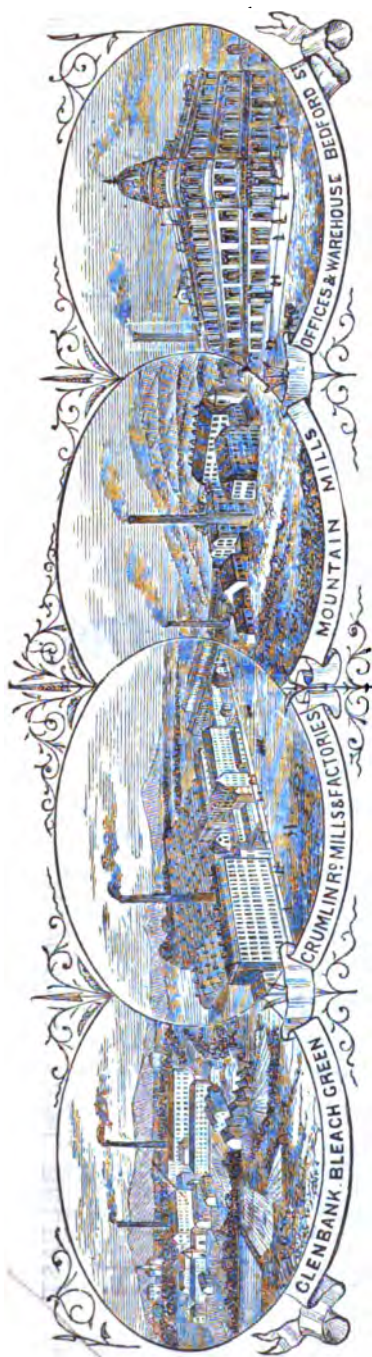
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Clothing, Jewelry, Fancy Goods.

- 261 Smyth & Co., Balbriggan, Ireland.—Balbriggan hosiery, lace hose, light stockings. 250
- 261a Turner, George, & Co., London.—Military and traveling equipments; application for picketing horses. 250
b Hammock-valise and canteen. 255
- 262 Roe, William Allen, Leicester.—Boots and shoes. 251
- 263 Lobb, John, London.—Gentlemen's and ladies' boots. 251
- 264 Dash, Osmond, Brighton.—Hats and caps. 251
b Umbrellas. 254
- 260 Lincoln, Bennett, & Co., London.—Hats. 251
- 261 Humbert, Hermann, London.—Hats and bonnets; hat and bonnet shapes. 251
- 263 Debenham & Freebody, London.—Gloves. 251
- 264 Tress & Co., London.—Hats; pith and felt solar hats and helmets. 251
- 264a Jacoby, M., & Co., Nottingham.—Valenciennes and silk guipures; imitation Swiss curtains, lace curtains. 252
- 265 Smith, George John, London.—Irish lace made by the Industrial Poor. 252
- 264a Heymann & Alexander, Nottingham.—Silk, wool, and cotton laces. 252
- 266 Dunraven, the Countess of, Adare, County Limerick, Ireland.—Embroidery on lawn; robes, pocket handkerchiefs, insertion for dresses, pincushion cover, etc. 252
- 266a Simon, May, & Co., Nottingham.—Lace curtains, valances. 252
- 267 Goggin, Jeremiah, Dublin.—Jewelry. 253
b Reading-stands, walking-canes, pipes, etc. 254
- 269 Francati & Santamaria, London.—Jet ornaments, brooches, earrings, bracelets, necklaces, etc.; jet cameo mosaics, carved by Roman cameo cutters. 253
- 271 Neal, John, London.—Gold and silver jewelry, precious stones. 253
- 272 Atchison, James, Edinburgh.—Scottish jewelry, in gold and silver; Highland ornaments, and stones found in Scotland. 253
- 273 Gibson, William, Belfast.—Gold, diamond, and Irish bog oak jewelry. 253
b Walking-sticks and table ornaments. 254
- 274 English, John, & Co., Feckenham, Worcestershire.—Needles; fishhooks; steel pins; hairpins; bodkins. 254
- 275 Johnson, J., & Co., Charterhouse Works, Sycamore street, London.—Shell boxes, toy furniture and ornaments, and fancy paper boxes. 254
- 276 Davis & Wilson, Birmingham.—Whip, walking-stick, and umbrella mountings; African chiefs' canes; whips and general whip materials. 254
- 277 Millward, Henry, & Sons, Redditch.—Needles, sewing machine needles, fishhooks. 254
- 278 Turner, R., & Co., Old Factory, Redditch.—Needles, pins, fishhooks, etc., displayed in a glass case, forming model of the exhibition of 1851. 254
- 279 Swaine & Adeney, London.—Whips, whip lashes, thongs and sockets; horns, canes, and walking-sticks; sporting apparatus. 254
- 280 Smith, John Wright, Leicester.—Self-acting needles used in hosiery frames. 254
- 281 Kent, George Barton, & Co., London.—Ivory paper knives and shoe lifts. 254
- 282 Evans, David, Studley, Redditch.—Needles for hand and machine sewing. 254
- 283 Fenton, James, Birmingham.—Pearl buttons. 254
- 284 Kirby, Beard, & Co., Birmingham.—Pins, needles, hairpins, fishhooks, etc. 254
- 284a Elrick, Charles Gray, Aberdeen, Scotland.—Dressing combs; real and imitation shell, side braid, and high Spanish combs, etc. 254
- 285 Sangster & Co., London.—Umbrellas, parasols, sunshades, whips, canes. 254
- 286 Smith, James, & Son, Astwood Bank, near Redditch.—Needles, showing stages of manufacture; bodkins, hairpins, and fancy cases for holding needles. 254
- 287 Hayes, Crossley, & Co., London.—New shape sewing needles, machine needles, pins, bodkins, and specimens in various stages of preparation. 254
- 288 Cooke Bros., Birmingham.—Safety pins, curtain hooks, and fancy nails. 254
- 289 Woodfield, William, & Sons, Ease-more Works, Redditch.—Needles, sewing machine needles, fishhooks, etc.; sail tools and fancy needle cases. 254
- 290 Martin, William Henry, London.—Umbrellas, walking-sticks, whips. 254
- 292 Tayler, D. F., & Co., New Hall Works, Birmingham.—Solid-headed toilet pins, hairpins, hooks and eyes, pearl buttons. 254
- 295 Hoe, Richard, & Sons, London.—Leather portmanteaus, hat cases, and bags. 255
- 295a Ward, Marcus, & Co., London.—Fancy leather work. 255
- 296 Harrington, J., & Co., London.—Imitation leather hat linings, shoes and shoe linings, wall decorations, pocket-books, belts, dispatch boxes, dressing and jewel cases, glove and handkerchief boxes, etc. 255
- 297 Bussey, Geo. G., & Co., London.—Chill leather portmanteaus, trunks, travelling bags, and leather and waterproof goods used for shooting and travelling purposes. 255

Stationery, Weapons.

297^a Jeffreys, Charles, London.—Leather traveling and jewel cases; morocco and velvet cases. 255

Paper, Blank Books, and Stationery.

299 Hinks, Wells, & Co., Buckingham Steel Pen Works, Birmingham.—Steel pens, penholders. 258

300 Stephens, Henry Charles, London.—Inkstands, gum mucilage, quills, sealing wax, parallel rulers. 258

301 Ortner & Houle, London.—Seal engraving, steel and copper plate heraldic engraving, and die sinking. 258

302 Ward, Marcus, & Co., London.
^a Writing paper and envelopes, diaries, calendars, etc. 258
^b Photograph albums and scrap books. 261
^c Cards and valentines. 262

303 Blackwood, John, & Co., London.—Sealing and bottle wax. 258

304 Lyons, William, Manchester.—Sealing wax, gum mucilage. 258

305 Waterston, George, & Son, Edinburgh.—Sealing wax. 258

306 Ford Works Co., Ford, Durham.—Paper stock, manufactured from esparto grass: products from esparto, bamboo, megasse, phormium tenax, maize, and other fibres. 259

307 Dudgeon, Arthur, London.—Writing-papers; paper pulp manufactured from peat. 259

308 Pirie, Alexander, & Sons, London.
^a Writing-papers. 259
^b Cardboard. 262
^c Enameled papers. 264

310 Fletcher, Robert, & Son, Kersley Paper Works, Stoneclough.—White and colored papers, fine tissues, silver tissues, copying and cigarette papers. 259

311 Birdsall & Son, Northampton.—Binding of the Hexaglot Bible. 261

312 Goodall, Charles, & Son, Camden Works, London.—Playing and Christmas cards. 262

313 Rimmel, Eugene, London.
^a Valentines. 262
^b Fancy crackers. 261

313^a Stevens, Thomas, Stevengraph Works, Coventry.—Cards and valentines. 262

314 Jeffrey & Co., London.—Artistic wallpaper decorations. 264

Military and Naval Armaments, Ordnance, Firearms, and Apparatus of Hunting and Fishing.

315 Reilly, E. M., & Co., London.—Breechloading guns and express rifles. 265

315^a Bussey, Geo. G., & Co., London.—Breechloading guns and their accessories; gyro pigeon. 265

316 Greener, William Wellington, Birmingham.—Sporting guns and rifles; breechloading guns. 265

317 Rigby, John, & Co., Dublin.—Guns and rifles and their accessories. 265

318 Henry, Alexander, Edinburgh.—Breechloading express rifles, fowling-pieces, harpoon and bomb-lance guns; military arms and target rifles. 265

319 Clay, Randolph, London.—Converter for breechloading firearms. 265

320 Dougall, James Dalsiel, Glasgow.—Long-range shotguns and rifles. 265

322 Lancaster, Charles, London.—Guns, rifles, cannon; drawings and models of the oval bored. 265

323 Scott, W. & C., & Sons, Premier Gun Works, Birmingham.—Sporting firearms, revolvers, gun materials. 265

324 Needham, J. & G. H., London.—Breechloading double guns. 265

325 Purdey, Jas., London.—Guns, rifles, etc. 265

326 Lancaster, Alfred, London.—Sporting guns and rifles. 265

327 Soper, William, Reading.—Rifles. 265

328 Lang, J., & Sons, London.—Guns and rifles. 265

328^a Eley Bros. (limited), London.—Paper and metal cartridge cases (empty), sporting and military percussion caps, gun waddings. 265

329 Webley, P., & Son, Birmingham.—Sporting breechloading guns, rifles, and revolvers. 265

329^a Hewitt, William, Bristol.—Breechloading gun, gun carriage. (*1st Machinery Hall*). 266

330 Needham, John, Sheffield.—Daggers. 268

331 Brookes & Crookes, Atlantic Works, Sheffield.—Sportsmen's and bowie knives. 268

333 Buchanan, James, Glasgow.—Sea fishhooks. 269

334 Ryder, William Henry, Birmingham.—Fishing tackle. 270

335 Green, E. C., Cheltenham.—Sporting guns, with their appurtenances; cleaning rods, with attachments; cartridge-loading implements, nipple keys, gun cases and bags. 269

336 Tolley, J. & W., Pioneer Works, Birmingham.—Sporting breechloading shot guns, implements, cartridge cases, lubricators, bullets, and primers for reloading cartridges. 269

337 Williams & Powell, Liverpool.—Breechloading guns. 269

Medicine, Surgery, and Prosthesis.

338 Allen & Hanburys, London.—Cod-liver oil; gelatine impregnated with atropine and calabar bean, for application to the eye. 272

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

JOHN CLARK, JR. & CO.'S

MILE END, GLASGOW,

BEST

Six-cord Spool Cotton

ON BLACK SPOOLS,

IS UNRIVALLED

FOR

HAND AND MACHINE USE.

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MONTREAL.

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Exhibition.

Medal for Merit,



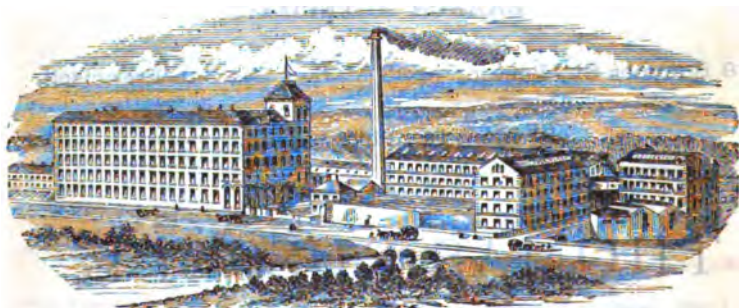
1873.



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Remarkable for its strength, pliability, evenness, and freedom from knots. It meets all the requirements of the different kinds of Sewing Machines, and is equally suitable for hand use.



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BELLE-VUE MILLS,
SKIPTON, YORKSHIRE
COTTON SPINNERS FROM A.D. 1794.
SEWING COTTON MANUFACTURERS FROM A.D. 1870.

AGENTS IN THE UNITED STATES,
MESSRS. WILSON & MERRILL, BOSTON.

Medical and Surgical Appliances, Hardware, Cutlery, Vehicles.

- 339 Gerrard, Alfred William, London.**—Mustard plasters. 272
- 340 Evans, Sons, & Co., Liverpool.**—Vegetable, animal, and mineral drugs; pharmaceutical products and accessories. 272
- 341 Usher, Rufus, Bodicote, Oxon.**—Medicinal rhubarb; extract of henbane and dried henbane leaves; photographs of henbane plants. 272
- 342 Mackay, John, Edinburgh.**—Articles of diet for invalid and table use. 273
- 343 Mellin, Gustav, London.**—Non-farinaceous food for infants and invalids. 273
- 344 Goodall, Backhouse, & Co., Leeds.**—Food for infants and invalids. 273
- 345 Lynch & Co., London.**—Druggists' sundries and surgical instruments; spinal apparatus, chest protectors, feeding bottles, spray producers, poison bottles, etc. 276
- 346 Glasgow Apothecaries Co., Glasgow.**—Surgical appliances and antiseptic dressings. 276
- 347 Mayer & Meltzer, London.**—Surgical instruments. 276
- 348 Lee, Robert James, London.**—Steam draft inhaler and disinfecter. 276
- 348a Haywood, J. S., Nottingham.**—Surgical bandages, belts, trusses, etc. 276
- 349 Turner, Archibald, & Co., Leicester.**—Surgical braids and bandages. 276
- 350 Pulvermacher, Isaac Louis, London.**—Electrical instruments for medical purposes. 276
- 353 Liverpool Spun Oakum Co., Liverpool.**—Oakum, styptium; pure antiseptic dressing for hospital use. 276
- 353a Clay, Randolph, & Co., London.**—Portable invalid bed tray. 278
- 354 Turner, George, & Co., London.**—Ambulances. 278
- Hardware, Edge Tools, Cutlery, and Metallic Products.**
- 355 Ward & Payne, Sheffield.**
a Tools for carpenters, joiners, coachmakers, shipwrights, millwrights, masons, bricklayers, tanners, carriers, engravers, die-sinkers, plasterers; wood, stone, and metal carvers and turners, etc. 280
b Sheep shears. 281
- 356 Smith, John & Samuel, Low Bridge Works, Keighley, Yorkshire.**—Engineers' and machinists' tools. (*In Machinery Hall.*) 280
- 357 Baker, William, London.**—Awls, bodkins, needles for saddlers, packers, and upholsterers; screwdrivers. 280
- 358 Addis, J. B., & Sons, Arctic Works, Sheffield.**—Tools for carving stone and wood; turning tools for iron, brass, ivory, hard wood, etc.; carpenters' tools. 280
- 359a Needham, John, Sheffield.**—Cutlery, table and dessert knives and forks, fish eaters. 281
- 359b Wootenholm, George, & Son (limited), Sheffield.**—Cutlery. 281
- 359c Brooks, Henry, & Co., London.**—Metal stoppers and collapsible tubes for artists' colors. 281
- 359d Burnand, James, & Co., Sheffield.**—Table cutlery, etc. 281
- 359e Needham, John, Sheffield.**—Cutlery. 281
- 360 Neal, John, & Co., London.**—Table, dessert, and fish cutlery. 281
- 360a Brookes & Crookes, Atlantic Works, Sheffield.**—Pen, pocket, and table knives, scissors, razors, and dressing case instruments, cutlery. 281
- 360b Ryder, William Henry, Birmingham.**—Taps for drawing effervescing wines or aerated waters. 281
- 360c Mayer & Meltzer, London.**—Cutlery. 281
- 361 The Patent Nut & Bolt Co. (limited), London Works, near Birmingham.**—Iron bolts, nuts, screws, rivets, and washers; fish and sole plates; fish bolts, spikes, and fang bolts. 284
- 362 Francis, Thomas, & Co., Birmingham.**—Nails. 284
- 363 Baker, Christopher, & Sons, Birmingham.**—Coffin furniture; cabinet and general brass fittings; rails, stair rods, nails, and bolts. 284
- 364 The Phosphor Bronze Co. (limited), London.**—Phosphor bronze tools, locks, tubes, wire, sheet, steam fittings, parts of machinery, etc. 284
- 365 Adams, Robert, London.**—Hinges and shoes, secure fastening bolts, weather-tight sill bars for French casements, etc. 284
- 366a Turner, George, & Co., London.**—Screw anchor peg. 284
- 367a Ullathorne & Co., London.**—Heel balls and shoe findings. 284
- 367b Turner, Archibald, & Co., Leicester.**—Elastic fabrics. 285
- Fabrics of Vegetable, Animal, or Mineral Materials.**
- 368 Low, Son, & Haydon, London.**—Brushes. 286
- 369 Kent, George Barton, & Co., London.**—Brushes. 286
- 370 Culmer, W., & Sons, London.**—Brushes used in decorative art. 286
- 371 Bevis, Henry, London.**—Silk banner with emblematic designs. 288
- 372 Spill, Daniel, London.**—Ivorie. 289
- 372a Barnard, Brady, London.**—Bassinettes, baskets, etc. 289
- Carriages, Vehicles, and Accessories.**
- 373 Windover, Charles Sandford, London.**—Brougham, canoe, landau, Victoria, Parisian, and Stanhope phaeton. 290

Vehicles.

374 Mulliner, H., & Co., Northampton.—Carriages. 292

375 McNaught & Smith, Worcester.—Barouche, landau, and broughams. 292

376 Thorn, Charles, Norwich. 292
a Carriages. 292

b Shooting and baggage cart. 294

377 Roberts, John, Manchester.—Patrian phaeton. 292

378 Hooper & Co., London.—Carriages and drawings. 292

380 Peters, Thomas, & Sons, London.—Carriages. 292

381 Thompson, Charles, London.—Perambulator. 293

381a Roberts, Digby, Coventry.—English bicycle. 293

382 Hawkins Bros., Hatherton Works, Walsall.—Bits, stirrups, spurs, chains, buckles, and general saddlery iron work. 296

383 Hudson, Samuel, Dublin.—Trace and shaft tug safety buckles; safety stirrup. (*In Swaine & Adeney's case.*) 296

384 Martin, Robert, Old Charlton, Kent.—Horse clipping machines: circular cutters for cutting the teeth of the above machines. (*In Machinery Hall.*) 296

385 Pollock, Sydney, London.—Apparatus for checking runaway and unmanageable horses. 296

387 Goodall, Chas., & Son, London.—Card printing. 424

388 Cohné, Sigismund, London.—Bearings requiring no lubricant. 573

389 Parkinson Bros., Burnley.—Spiced pickling vinegar. 660

(*N. B.—Certain exhibits in this Department, from Great Britain, are installed in Agricultural Hall, and catalogued in Part IV.*)

For classes of exhibits indicated by numbers at end of entries, see Classification, pp. 27-45.

A. LAMOTTE,
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*Agent for Merchants, Growers and Manufacturers at Industrial
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SHELL BOX MANUFACTURERS,

See Show Case
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Charterhouse Works,

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**SHELL COTTAGES,
HANDKERCHIEF & GLOVE BOXES,
TOY FURNITURE,
And all kinds of Ornamental Boxes.**

Incorporated 1853.

EXCHANGE

Fire Insurance Company,

172 BROADWAY,

Corner Maiden Lane, NEW YORK.

ASSETS, JANUARY 1, 1876.

<i>Cash Capital</i>	<i>\$200,010.00</i>
<i>Surplus</i>	<i>224,317.95</i>
<i>Total Assets</i>	<i>\$424,327.95</i>

R. CARMAN COMBES, PRESIDENT.

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THOMAS B. PECK, Ass't SEC'Y.

BRANCH OFFICE,

Southwest corner Fourth and Library Sts., Philadelphia.

MORDECAI D. EVANS, MANAGER.

NEW ZEALAND.

*(North of Nave, Columns 10 to 17.)***Manufactures, Education and Science.****Chemicals.**

- 1 Horler, John, Woolston, Canterbury.—Soap and mould candles. 201
- 2 Innes, W. M., Port Chalmers, Otago.—Cod-liver oil. 201
- 3 Louissan, T. B., Nelson.—Paint made from hematite ore. 202
- 4 Johnstone Brothers, Nelson.—Umbel and red pigments made from hematite ore. 202
- 5 Grayling, W. S., Taranaki.—Extract of towai (*Weinmannia racemosa*); extract of hinau (*Eldeocarpus dentatus*). 202

Ceramics—Pottery, Porcelain, Glass, &c.

- 6 Kennedy Bros., Nelson.—Fire bricks. 207

Furniture and Objects of General Use in Construction and in Dwellings.

- 7 Greenfield & Stewart, Wellington.—Panel door made of rimu (*Dacrydium cupressinum*). 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 8 Government of New Zealand.—Specimens of fabrics made from Phormium tenax. 233

Woven and Felted Goods of Wool, &c.

- 9 Webley Bros., Nelson.—Nelson tweeds made from New Zealand wool. 235
- 10 Cook, James, Nelson.—Woolen rugs, woven and dyed at Nelson. 239

Clothing, Jewelry, and Ornaments, Traveling Equipments.

- 11 Taylor, B. K., Wanganui.—Hat made of kiekie (cordyline). 251
- 12 Liardet, H. E., Wellington.
a Fancy articles made from feet and bones of sea birds. 254
b Feathers, muffs, collarettes, wristlets, &c. 256
- 13 Taylor, Mrs. Richard, Wanganui.—Ornamental satchel and table mat. 254
- 15 New Zealand Commissioners.—Garments and ornaments of the Maoris. 257

Fabrics of Vegetable, Animal, or Mineral Materials.

- 16 Moyle, Edward, Taranaki.—Cord made from phormium tenax. 287

- 17 Bevan, Thomas, Jr., Otaki, Wellington.—Rope made from Maori dressed phormium, fish line, horse halter, lead line, twine. 287
- 18 Bevan & Sons, Otaki, Wellington.—Cord and twines made from Maori dressed phormium. 287
- 19 Kinross & Co., Hawke Bay.—Cordage and twines made from Maori dressed phormium. 287
- 20 Grant & Co., Otago.—Cordage made from phormium. 287
- 21 Auckland Patent Steam Rope Co.—Phormium rope. 287
- 22 Canterbury Flax Association, Christchurch.—Tarred and untarred cordage made from phormium. 287
- 23 Lennon, T., Christchurch.—Cordage, ropes, and twines, made from phormium. 287
- 24 Cook, James, Nelson.—Mats and matting made from phormium. 287
- 25 Simons & Malcolm, Nelson.—Door mats made from phormium. 287

Institutions and Organisations.

- 26 Colonial Museum, J. Hector, Director.—Garments and ornaments of the Maoris. 312
- 27 National Museum at Washington, J. Henry, Secretary.—Garments of the Maoris. 312
- 27a New Zealand Commissioners.—Weapons of the Maoris. 312

Engineering, Architecture, Maps, &c.

- 28 Government of New Zealand.—Geological maps of New Zealand, by James Hector. 335
- 29 Geological Survey Department, James Hector, Director.—Geological plans and sections. 335
- 30 Canterbury Museum, J. von Haast, Director.—Geological plans and sections. 335
- 31a Hector, J.—Relief Model of New Zealand, geologically colored. 335
- 32a Government of New Zealand.—Topographical map of the colony, engraved by E. Ravenstein. 235

Physical, Social, and Moral Condition of Man.

- 33 National Museum, Washington, J. Henry, Secretary.—Canoe paddles of Maoris; skulls of Maoris and Moriori from the Chatham Islands. 340

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Education and Science, Art, Agriculture.

- 34 Woon, R. W., Wanganui.—Canoe paddles of the Maoris. 340
- 35 Government of New Zealand.—Statistics and census of New Zealand for 1874, prepared by W. R. E. Brown, Registrar-General. 345
- 35a Hector, J.—Transactions and Proceedings of the New Zealand Institute, Vols. I. to VII. 345
- 35b Vogel, Sir Julius.—Hand-book of New Zealand. 345

Painting.

- 35c Geological Survey Department, James Hector, Director.—Water color sketches by W. M. Cooper. 411

Engraving and Lithography.

- 35d New Zealand Commissioners.—Pictures from W. L. Buller's "Birds of New Zealand," drawn by J. H. Keulemans. 422

Photography.

- 36 Burton Bros., Dunedin.—Views of scenery of South Island. 430
- 36a Bothamley, A. T.—Photographs of Maoris. 430
- 37 Government of New Zealand.—Views of scenery, etc., by H. Deveril. 430
- 38 Taranaki Committee.—Views of New Plymouth and surrounding country. 430
- 38a Hector, J.—Photographs exhibiting domestic life of the Maoris. 430
- 39 Mundy, D. L.—Views of scenery, foliage, buildings, gold mining, etc. 430

Railway Plant, Rolling Stock, etc.

- 40 Government of New Zealand.—Photographs of engines and engineering works used in New Zealand. 570

Arboriculture and Forest Products.

- 41 Cruickshank, J. D., Upper Hutt Saw Mills, Wellington.—Section of trunk of rimu (*Dacrydium cupressinum*), red pine of settlers. 600
- 42 Westland Committee.—Specimens of woods with bark. 600
- 43 Taranaki Committee.
- a Specimens of woods. 601
 - b Barks of the Atawhero and the Pukatea; earth used by the Maoris as a mordant for dyes. 602
 - c Dried ferns; fungus exported as food to China; esculent fern root; birds' nest fungus and curious parasite. 604
- 44 Black, W. B., American Coach Factory, Wellington.—Specimens of woods. 601
- 45 New Zealand Commissioners.—Specimens of woods. 601
- 46 Grayling, W. S., Taranaki.—Bark of hinau; blue earth, used by the Maoris, mixed with shark oil, as blue paint. 602

- 47 Colonial Museum, Wellington, James Hector, Director.—Tanbarks, native to New Zealand. 602
- 49 Walker, Renwick & Co., New York.—Kauri gum. 603
- 50 Forbes, R. W., New York.—Kauri gum. 603

Agricultural Products.

- 51 Banks, E. H., Christchurch.—Oats and other cereals. 600
- 52 Wood, W. D., Christchurch.—Wheat. 600
- 53 Cunningham, P., & Co., Christchurch.—Wheat grown in Canterbury. 600
- 54 Ruddenklau, J. G., Addington, Canterbury.—Wheat. 600
- 55 Hooper & Dodson, Nelson.—Hops. 623
- 56 Wilkin, Robert, Christchurch.—Perennial rye grass and cocksfoot seed. 624
- 57 Armstrong, J. B., Christchurch.—Phormium seeds. 624

Animal and Vegetable Products.

- 58 Wilson, Thomas, Woolston, Canterbury.—Saddle, harness, and shoemakers' leather; fancy colored skins for shoemakers and bookbinders. 652
- 59 Armitage, Taranaki.—Dressed kip and calf leather. 652
- 60 Morris, Thomas, Oamaru, Otago.—Gentleman's town saddle. 652
- 61 National Museum, Washington, J. Henry, Secretary.
- a Specimens of kiwi; skeleton and bones of moa. 652
 - b Egg of the kiwi, and model of egg of moa. 653
- 62 Gilmour, John, Christchurch.—Hams and bacon. 656
- 63 New Zealand Provision & Produce Company, Christchurch.—Preserved meats. 656
- 64 Nairn, David, Addington, Canterbury.—Tomato sauce. 656
- 65 Trent Brothers, Woolston, Canterbury.—Chicory in different stages of preparation. 657
- 66 Smith, James, Nelson.—Fruit wines. 660
- 67 Henderson & Farrah, Wanganui.—Ale and porter. 660

Horticulture.

- 68 Coates, Laning, Christchurch.—Live ferns. 707

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

NEW SOUTH WALES.

(North of Nave, Columns 10 to 17.)

Manufactures, Education, Art.

Chemical Manufactures.

- 1 Read, R. B., Randwick.—Extract, leaves, and berries of *Smilaxis glycyphylla*, or Australian sarsaparilla. 200
- 2 Barrett & Co., Sydney.—Aerated waters and cordials. 200
- 3 Gilroy & Hurst, Sydney.—Baking, custard, egg, and butter powders. 200
- 4 Hunt, A. M., & Co., Goulburn.—Baking powders. 200
- 5 Swain & Co., Parramatta.—Washing fluid and soap. 201
- 6 New South Wales Shale & Oil Co., Sydney.—Kerosene oil, etc. 201
- 7 New South Wales Commissioners, Sydney.—Stearine candles. 201
- 8 Layton, Fred., Grafton, Clarence river.—Soap and candles. 201
- 9 Underwood, Thomas, Paddington.—Paints and paint pigment. 202
- 10 Hoff, M. Camille, Nakutakinna, New Caledonia.—Indigo. 202

Ceramics—Pottery, Porcelain, Glass, etc.

- 11 New South Wales Commissioners.—Churns, jars, etc. 210

Furniture, etc.

- 12 Lyons, Cottler, & Co., Sydney.—Stained glass staircase window—subject, "Captain Cook." 219
- 13 Hudson Brothers, Steam Joinery Mills, Sydney.—Window sashes, outside hall door, inside four-panel door, drapery panel door, French casements, cedar table legs. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 14 Read, John Cecil, Darlinghurst, Sydney.—Mats and matting made of cocoa fibre yarn, by aborigines of New South Wales and Frazer's Island. 229
- 15 Rudder, E. W., Kempsey.—Linen. 233

Woven and Felted Goods of Wool, etc.

- 17 New South Wales Commissioners.
 - a Tweeds. 235
 - b Shawls. 237
- 18 Jennings, P. A., Sydney.—Rug of tanned platypus skin. 239
- 19 New South Wales Commissioners.—Wallaby skin rug. 239

Clothing, Jewelry, and Ornaments, Traveling Equipments.

- 20 Jennings, P. A., Sydney.—Collaret and cuffs of platypus skin. 250
- 21 Midgley, Mrs., Cook's River.—Wool flowers, copied from Australian native flowers. 254
- 22 Layton, Fred., Grafton.—Furs and skins of opossum, kangaroo, wallaby, and platypus. 256

Paper, Blank Books, and Stationery.

- 23 Government Printing Office, Sydney.—Blank books and printing. 261

Medicine, Surgery, Prothesis.

- 24 Spencer, John, Sydney.—Mechanical dentistry. 277

Fabrics of Vegetable, Animal, or Mineral Materials.

- 25 New South Wales Commissioners, Sydney.—Brushware. 286
- 26 New South Wales Commissioners, Sydney.—Manila rope, New Zealand flax rope, and lines. 287
- 27 Green, R., Sydney.—Cradles, flower stand, chair, perambulator; cane and willow work. 289

Carriages, Vehicles, and Accessories.

- 28 John Robertson, Sydney.—Buggy. 292
- 29 New South Wales Commissioners.—Lady's side saddle. 296
- 30 New South Wales Commissioners, Sydney.—Saddlery. 296

Educational Systems, Methods, and Libraries.

- 30a Government Printing Office, Sydney.—Books. 306
- 30b Sutherland, George.—Christian psychology. 306
- 30c Australian Museum.—Collection of birds, animals, etc. 312
- 30d New South Wales Commissioners.—Collection of birds. 312

Photography.

- 30e New South Wales Commissioners.—Photographs. 430
- 30f Holtermann, B. O.—Photographs. 430
- 30g Barnet, James.—Photographs. 430
- 30h Richards, Thomas.—Photo-lithographs. 430

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Forest and Agricultural Products, Animal and Vegetable Products.

Arboriculture and Forest Products.

- 31 Macarthur, Sir W., assisted by Hill & Hanrahan & J. Hassell.—Woods of southern districts. 600
- 32 Moore, Charles.—Woods indigenous to the northern districts. 600
- 33 Shoobert, James, Sydney.—Iron bark and turpentine timber. 600
- 34 Derepas, W., Yonngara Station.—Boree, and straight and curly yarran timber. 600
- 35 Hodgson, George, Redfern.—Timber from Bellinger river. 600
- 36 Penzer, J., Bundamar, near Dubbo.—Timber. 600
- 37 Du Faur, E., Sydney.—Timber from Mount Victoria. 600
- 37a New South Wales Commissioners.—Woods indigenous to New South Wales. 600
- 38 Hudson Bros, Botany Road, Redfern.—Timber. 600
- 39 Derepas, R., Yonngara.
a Yarran gum. 603
b Quondong nuts. 605
- 40 Harling, Mrs., & H. H. Field, Sydney.—Pressed ferns. 604
- 41 Moore, Charles, Botanic Gardens, Sydney.—Seeds, ginger-root, and bitter bark. 605
- 42 Hemmings, F. W., Loma Loma, Fiji.—Dried cocoanut. 605
- 43 Ryder Bros, Mango Island, Fiji.—Dried cocoanut. 605

Agricultural Products.

- 44 Lovegrove, W., Terrara, Shoalhaven river.—Maize. 620
- 45 Ryder Bros, Mango Island, Fiji.
a Maize. 620
b Beans. 621
c Turmeric and turmeric powder. 622
- 46 Peden, M. J., Bega.—Maize. 620
- 47 Demeestre, E., Shoalhaven.—Maize. 620
- 48 Eggins, James, Grafton, Clarence river.—Maize. 620
- 49 Blain, C. R., Grafton, Clarence river.—Maize. 620
- 50 Macarthur, Sir W.—Maize. 620
- 51 Lewis Bros., Tamworth.—Wheat. 620
- 52 Dalton Bros., Orange.—Wheat. 620
- 53 Nelson Bros., Orange.—Wheat. 620
- 54 Jaeschke, Gustave, Clarence river.—Cigars and tobacco leaf. 623
- 55 Schweigert, W., & Co.—Cigars. 623
- 56 Muirhead, R., Grafton, Clarence river.—Cigars. 623
- 57 Hoff, M. Camille, Nakutakina, New Caledonia.—Coffee. 623

Land Animals.

- 59 Jennings, P. A., Sydney.—Stuffed platypus. 637

Water Animals, Fish Culture and Apparatus.

- 60 Hemmings, F. & W., Loma Loma, Fiji.—Bêche de mer. 643

Animal and Vegetable Products.

- 61 Secombe, R., Milton, Ulladulla.—Preserved milk. 651
- 62 Wright, Davenport, & Co., Sydney.—Leather. 652
- 63 Forsyth, J., & Sons, Sydney.—Leather. 652
- 64 Alderson & Sons, Sydney.—Leather. 652
- 65 Bell, H., Sydney.—Tallow and neat's-foot oil. 652
- 66 Hewitt, T. G., Grafton, Clarence river.—Tallow and neat's-foot oil. 652
- 67 Berry, J. S., Botany, Sydney.—Neat's-foot oil and gluc. 652
- 68 Layton, Fred., Grafton, Clarence river.—Beeswax. 654
- 69 Sydney Meat Preserving Co., Sydney.—Preserved meats. 656
- 70 Squires, Elam, Penrith.—Preserved fruits, jams, and jellies. 656
- 71 Hoff, Camille, Nakutakina, New Caledonia.—Preserved pineapples. 656
- 72 Biddell Bros, Sydney.—Preserved lemons and oranges. 656
- 73 Moore, Charles, Botanic Gardens, Sydney.—Preserved lemons and oranges. 656
- 74 Watson Bros., Young.—Flour. 657
- 75 Lewis Bros., Tamworth.—Flour. 657
- 76 Cohen & Levy, Tamworth.—Flour. 657
- 77 Dalton Bros., Orange.—Flour. 657
- 78 Nelson Bros, Orange.—Flour. 657
- 79 Waters, James, Ravensdale, Brisbane Water.—Arrowroot. 658
- 80 Cole, W., & Son, Tomago, Hunter river.—Arrowroot. 658
- 81 Laurie, W. & L., Gloucester, Port Stephens.—Arrowroot. 658
- 82 Ryder Bros., Mango Island, Fiji.—Arrowroot. 658
- 83 Payne, George, Grafton, Clarence river.—Arrowroot. 658
- 84 Champlon, George, Ulmarra, Clarence river.—Arrowroot. 658
- 85 Munn, A. L., Merimbula.—Maizena. 658
- 86 Colonial Sugar Refining Co.—Refined sugars. 659
- 87 Martin, George, Grafton, Clarence river.—Sugar. 659
- 88 Chowne, E. G., Ulmarra, Clarence river.—Sugars. 659
- 89 Biddell Bros., Sydney.—Confectionery. 659
- 90 New South Wales Co., Clarence river.—Raw sugars. 659
- 91 Fallon, James T., Albury.—Wines. 660
- 92 Munro, A., Bebeah, Singleton.—Wines. 660

Vegetable Products, Textile Substances.

- | | |
|---|--|
| 93 Carmichael, G. L. & J. B., Porphyry, Wilkams river.—Wines. 660 | 107 ^e Tindal, E. & A.—Wool. 667 |
| 94 Brecht, Carl J. P., Rosemount, Deaman.—Wines. 660 | 107 ^f Clive & Hamilton.—Wool. 667 |
| 95 Powell, Edward, Richmond.—Wines. 660 | 107 ^g Bettington, J. B.—Wool. 667 |
| 96 Parnell, Montague, West Maitland, Hunter river.—Wines. 660 | 107 ^h Loder, Andrew.—Wool. 667 |
| 97 Wyndham, Wadham, Bukkulla, Inverell.—Wines. 660 | 107 ⁱ King, P. G.—Wool. 667 |
| 98 Wyndham, George, Braxton, Hunter river.—Wines. 660 | 108 Ramsay, D., Sydney.—Wool. 667 |
| 98 ^a Doyle, J. F., Kaloodah, Lochinvar.—Wines. 660 | 108 ^a Shanahan & Jennings.—Wool. 667 |
| 99 Monk, D. J., Sydney.—Malt and wine vinegars. 660 | 108 ^b Henty & Balfour.—Wool. 667 |
| 100 Marshall, J., Paddington Brewery.—Ale and porter. 660 | 108 ^c Learmonth, L.—Wool. 667 |
| 101 Hardie, John, Sydney.—Blacults. 661 | 108 ^d White, F. R.—Wool. 667 |
| 102 Layton, Fred., Grafton, Clarence river.—Castor oil. 662 | 108 ^e Caughy, S. M.—Wool. 667 |
| Textile Substances of Vegetable or Animal Origin. | |
| 103 Hemmings, F. & W., Loma Loma, Fiji.—Cotton. 665 | 108 ^f Campbell, D. H.—Wool. 667 |
| 104 Ryder Bros., Mango Island, Fiji.—Cotton. 665 | 108 ^g Wilson, A.—Wool. 667 |
| 105 Hoff, Camille, Nakutakina, New Caledonia.—Cotton. 665 | 108 ^h Loder, A.—Wool. 667 |
| 106 Moore, Charles, Botanic Gardens, Sydney.—Vegetable fibres of various kinds. 666 | 108 ⁱ Lethbridge, G. L.—Wool. 667 |
| 107 Rudder, E. W., Kempsey.—Fibre of gigantic nettle tree. 666 | 109 Lowe, A. H., Dynevor.—Wool. 667 |
| 107 ^a Cox, E. K.—Wool. 667 | 109 ^a Hume, E. B.—Wool. 667 |
| 107 ^b Cox, G. H.—Wool. 667 | 109 ^b Bowman, E. & A.—Wool. 667 |
| 107 ^c Cox, F. & A.—Wool. 667 | 109 ^c Brown, T. & Co.—Wool. 667 |
| 107 ^d Lamb & Roberts.—Wool. 667 | 109 ^d Gell, P. H.—Wool. 667 |
| | 109 ^e Gilbert, A. N.—Wool. 667 |
| | 109 ^f Macdonald, J. L.—Wool. 667 |
| | 109 ^g Allen, J.—Wool. 667 |
| | 109 ^h Brodribb, W. A.—Wool. 667 |
| | 110 May, J. M., Randwick, near Sydney.—Silk materials from the grain to the manufacture, produced by the inmates of the Asylum for Destitute Children, Randwick. 668 |
| | 111 Thorne, George, Sydney.—Cocoons and cards of eggs desiccated and pierced, grown at Claremont, Rose Bay, Sydney. 668 |
| Agricultural Engineering and Administration. | |
| | 112 Bell, H., Sydney.—Bonedust. 661 |
| | 113 Berry, J. S., Botany.—Bonedust. 661 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

VICTORIA.

(North of Nave, Columns 11 to 13.)

Chemical Manufactures, Ceramics, Furniture.

Chemical Manufactures.

- 1 Bosisto, Joseph, Richmond, Melbourne.—Chemical and pharmaceutical preparations obtained from the eucalyptus or gum trees of Australia, and other indigenous vegetation. 200
- 3 Hood & Co., Melbourne.—Chemical and pharmaceutical preparations. 200
- 4 Lewis & Whitty, Fitzroy.—Washing and baking powders, ball blue. 200
- 5 Stringer & Co., Melbourne.—Baking powder. 200
- 6 Sullivan, Joseph, Melbourne.—Poor man's filter; disinfectants, fluke specific and lick, hydrated silicate of aluminium. 200
- 7 Woodward, George, Kew.—Guano, deodorants, block of deodorized night-soil. 200
- 8 Fitts, Charles, & Son, Emerald Hill.—Near's-foot and trotter oil. 201
- 8a Apollo Stearine Candle Co. (limited), Footscray.—Stearine and paraffin candles, and products. 201
- 9 Kitchen & Sons, Melbourne.—Stearine and large carriage candles. 201
- 10 Borthwick, Alex., Melbourne.—Varnishes, anti-fouling composition for ships' bottoms, enameled cast iron pedestal pillars, anti-corrosive paint. 202
- 11 Bowman, John S., Melbourne.—Colonial crayons. 202
- 12 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Crayons. 202
- 13 Lewis & Whitty, Melbourne.—Blacking. 202
- 14 Hogg, S. P., & Co., Melbourne.—Curry powder. 203
- 15 Lewis & Whitty, Fitzroy.—Hair oil, essences, curry powder. 203
- 16 Perry, Hunter, & Co., Sandhurst.—Safety fuse. 204

Ceramics—Pottery, Porcelain, Glass, etc.

- 17 Birmingham & Lacy, Brunswick.—Red building and white pressed and moulded bricks. 206
- 18 Nolan, Luke, Brunswick.
 - a Stoneware drain pipes 206
 - b Bronze vases, stone porous jugs, patent damp-proof for floor ventilation. 210
- 19 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.
 - a Fire-clay crucibles. 207
 - b Encaustic tiles, trusses, vases, etc. 208
 - c Earthenware and pottery. 210
 - d Glasware. 216

- 20 Adams, R. T., Melbourne.—Filters. 210
- 21 Bendigo Pottery Co., Sandhurst.—Earthenware worm for still. 210
- 23 Ferguson & Urrie, Melbourne.—Stained glass for windows. 214
- 24 Gledhill, Melbourne.—Glass bottles. 215
- 25 Melbourne Glass Bottle Works Co., Emerald Hill.—Glass bottles. 215
- 26 Mount & Co., Emerald Hill.—Glassware. 215

Furniture, etc.

- 27 Alcock & Co., Melbourne.—Blackwood board table with appliances; console table. 217
- 28 Carr & Sons, Melbourne.—Window blinds, window sash, with Venetian shutters, etc. 219
- 29 Davis, J., Richmond.—Window sash. 217
- 30 Hodgson Bros., Sandhurst.—Self-acting Venetian blind, spring roller blind. 217
- 31 McEwan, James, Melbourne.—Sideboard. 217
- 32 Muschiaffi, Lewis, Melbourne.—Pier glass, console table. 217
- 33 Baker, John, Emerald Hill.—Safety steps. 220
- 34 Wiegmann, August, Melbourne.—Basketware cradles, perambulators, chairs and flower stands, baskets. 221
- 35 Walker, A. R., Melbourne.—Gas cooking stoves. 222
- 36 Shaw, Alfred, & Co., Melbourne.—Millet brooms and whisks. 224
- 37 Guthrie, G. D., Epsom, Sandhurst.—Collection of pottery ware for household use, etc. 224
- 38 Bogle, Andrew, & Co., Melbourne.—Boot and shoe brushing and cutters' polishing and sharpening machine. 224
- 39 Draper & Sons, Melbourne.—Earth-closets and fittings. 226

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 40 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Flax, ropes, lines, twines, etc. 229
- 41 Donaghy, Michael, Geelong.—Ropes and lines. 229

Woven Fabrics, Paper, Weapons, Vehicles, Art.

42 Miller, James, & Co., Melbourne.—
Ropes and lines. 229

43 McPherson, Thomas, Melbourne.—
Corn sacks, wool packs, and sugar bag-
ging. 229

Woven and Felted Goods of Wool, etc.

44 Barwon Woolen Mill Co., Geelong.
a Tweeds. 235
b Blankets. 237

45 Gray, Alexander, & Co., Albion Wool-
en Mills, Geelong.—Plain and fancy
tweeds. 235

46 Ballarat Woolen Co., Ballarat.—
Shawls, tweeds, blankets. 237

47 Director of Botanic Gardens, Mel-
bourne.—Dyed woolen cloth and silk. 238

48 Robertson, John, Melbourne.—Dyed
Angora goat's fleece. 240

42 Zoological and Acclimatization So-
ciety, Melbourne.—Angora goat's hair. 240

Silk and Silk Fabrics.

50 Commissioners for Victoria, for the
Philadelphia Exhibition, Melbourne.—
Silk cocoons from the Acclimatization
Society, Victoria, and Mrs. Bladen Nell;
cultivated silk, in cocoons and hanks,
also bleached, dyed, and worked upon
llama. 242

51 Timbrell, Ann, Collingwood.
a Cocoons produced by silkworms from
Japan, France, Italy, and Greece. 242
b Silk (raw material in hank). 243
c Victorian silk, worked on Brussels net. 246

52 Victoria Ladies' Sericulture Co.
(limited), Castlemaine.—Silk, desiccated
and pierced cocoons. 242

Clothing, Jewelry, and Ornaments,
Traveling Equipments.

53 Ford Brothers, Melbourne.
a Pith hats, in felt, silk, merino, etc. 251
b Pith sunshades for horses. 254

54 Inspector-General of Penal Depart-
ment, Melbourne.—Boots and shoes. 251

55 Rosier, John, Melbourne.—Boots and
shoes. 251

56 Commissioners for Victoria, for the
Philadelphia Exhibition, Melbourne.

a Myall pipes; rouzeau boxes of myall
wood. 254
b Address-case of inlaid leather. 255

57 De Richelieu, Madam F., Windsor.—
Ornaments made from fish scales, etc. 254

58 Pausacker, Evans, & Co., Mel-
bourne.—Registered edge, solid leather
portmanteaus. 255

Paper, Blank Books, Stationery.

59 Botanic Gardens, Director of, Mel-
bourne.—Paper made from various barks,
stems, and stems and leaves. 260

60 Ramsden, Samuel, Melbourne.—
Various grades of paper, including car-
tridge, printing, and wrapping paper. 260

Weapons, etc.

61 Commissioners for Victoria, for the
Philadelphia Exhibition, Melbourne.
a Aboriginal weapons, native axes. 268

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Medicine, Surgery, Prothesis.

62 Stanway, W., South Yarra.—Models
of chairs for invalids. 279

Hardware, Edge Tools, Cutlery, and
Metallic Products.

63 Danks, John, Melbourne.—Valves,
cocks, lubricators, injectors, etc. 284

64 McIlwraith, John, Melbourne.—Gas
pipe and tin tube. 284

Fabrics of Vegetable, Animal or
Mineral Materials.

64a Commissioners for Victoria, for
the Philadelphia Exhibition, Melbourne.
—Victorian and English emblems. 288

Carriages, Vehicles, and Accessories.

(For farm vehicles and railway carriages,
see Departments of Agriculture and Ma-
chinery.)

65 Stevenson & Elliott, Melbourne.—
Landau. 292

66 Bothwell, Wade, Melbourne.—Har-
ness, saddles, whips, etc. 296

67 Glenister, W. A., Geelong.—Axles,
Colling's crank, etc. 296

68 Stoneman, Alfred, Richmond.—Car-
riage springs. 296

Sculpture.

69 Commissioners for Victoria, for the
Philadelphia Exhibition, Melbourne.—
Medals of the Victorian Intercolonial Ex-
hibition, 1875; seal of the Melbourne
Public Library, University, and Exhibi-
tion of 1862. 402

Painting.

70 Campbell, O. R., Windsor.—Cross-
ing the Plains. 410

71 Commissioners for Victoria, for the
Philadelphia Exhibition, Melbourne.—
Heraldic painting on panels. 410

72 Curtis, J. W., Melbourne.—Track off
the Point Nepean road. 410

73 Guerard, E. Van, Melbourne.—Pul-
pit rock, Phillip Island, Ballarat, in
1873. 410

74 Johnston, H. J., Melbourne.—Sum-
mer Sunset. 411

75 Whitehead, Isaac, Melbourne.—
Dandenong State Forest. 411

Engraving and Lithographing.

76 Bowman, John S., Melbourne.
a "The Knob in the Alps," crayon, Miss
Bowman.

b "In the Alps," crayon, Miss Adams.

c "Fall from the Omeo Plains," crayon.

d "Valley in North Gippsland," crayon.

e "A Pool in the Otway Ranges," crayon,
F. Shaw.

f "Bushy Park," crayon. 420

77 Commissioners for Victoria, for the
Philadelphia Exhibition, Melbourne.—
Lithographs of fossils, roots, and seeds. 423

Art, Machinery, Agriculture.

Photography.

- 78 Ararat, Shire Council of, Ararat.—Photographic views and statistics of the shire. 430
- 79 Batchelder & Co., Melbourne.—Photographs of persons born in the colony of Victoria. 430
- 80 Bock, Henry, Gippsland.—Photographs of Victorian native flowers. 430
- 81 Chuck, T. F., Melbourne.—Photographs of persons born in the colony of Victoria. 430
- 82 Colac, Shire Council of, Colac.—Photographic views of the district. 430
- 83 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Photographic views of scenery, public and private buildings, cattle, etc. 430
- 84 Biographical charts of the schools of Venice and the Venetian state schools. 432
- 84 Creswick, Borough Council of, Creswick.—Photographic views and statistics of the Borough. 430
- 85 Darebin Shire, Council of, East Bourke.—Photographic views and statistics of the shire. 430
- 86 Echuca, Borough Council of, Echuca.—Photographic views and statistics. 430
- 87 Emerald Hill, Borough Council of, Emerald Hill.—Photographic views. 430
- 88 Hotham, Town Council of, Hotham.—Photographic views and statistics of the town. 430
- 89 Johnstone, O'Shannessy & Co., Melbourne.—Photographs of persons born in the colony of Victoria, photographs colored in oil. 430
- 90 McDonald, D., St. Kilda.—Photographic views. 430
- 92 Phoenix Foundry Co. (limited), Ballarat.—Photograph of locomotives, engine, and tender, manufactured for the Victorian government. 430
- 93 Prahran, Town Council of, Prahran.—Photographic views and statistics of the town. 430
- 94 Robertson Brothers, Colac.—Colored photographs of cattle, bred by exhibitors. 430
- 95 Sandhurst, City of, Sandhurst.—Photographic views and statistics of the city. 430
- 96 Stewart & Co., Melbourne.—Photographs of persons born in the colony of Victoria. 430
- 97 Surveyor General of Victoria, Melbourne.—Photographic views of botanical and other gardens. 430
- 98 Wangaratta, Shire Council of, Wangaratta.—Photographic views and statistics of the shire. 430
- 99 Willett, G., Ballarat.—Colored photographs. 430
- 100 Wilson, Sir Samuel, Ercildoune.—Photographs: team of Hereford bullocks, bred by himself; prize sheep; his residence, etc. 430
- 101 Melbourne, City of.—Photographic views of city. 430

Industrial and Architectural Designs, etc.

- 102 Dowling, William, Emerald Hill.—Centre flowers, trusses. 442
- 103 Heathcote, T. S., Carlton.—Painted panels. 442
- 104 Murphy, Edward, Sandridge-road.—Centre flowers, and ventilators, ornamental chimney cap. 442
- 105 Patterson Brothers, Carlton.—Tables of imitation wood and marble. 442
- 106 Pepper, George, Windsor.—Plasterers' models, ceiling and wall ventilators. 442

Machines, Tools, etc., of Mining, Chemistry, etc.

- 107 Morrison, L. K., Melbourne.—Abyssinian tube-wells and pumps, with boring apparatus. 501
- 108 White, David, Stawell.—Safety hook, to prevent accidents from overwinding in mining claims. 503
- 109 O'Malley, Edmund, Melbourne.—Ventilating safety cage, for mines. 504
- 110 Harkness, A., & Co., Victoria Foundry, Sandhurst.—Disk, fitted on screwed stamper shank, and showing principle; cam or wiper. 505
- 111 Perry, Davis, & Co., Sandhurst.—Stamper gratings. 505

Railway Plant, Rolling Stock, etc.

- 112 Cornish & Co., Melbourne.—Seats for railway carriages. 571
- 113 Stoneman, Edward, Richmond.—Railway truck spring. 573

Aerial, Pneumatic, and Water Transportation.

- 114 Cornish & Co., Melbourne.—Life-preserving buoys, mattresses, belts, rafts, etc.; seats, couches, and mattresses for ships. 590

Arboriculture and Forest Products.

- 115 Bass River Steam Saw-Mills, Bass river.—Blue gum timber. 600
- 116 Director of Botanic Gardens, Melbourne.—
a Carpological collection; barks, polished woods, fibre and tow prepared from barks, leaves, and stems. 600
b Resins, gums, oleo fat, and caoutchouc. 603
- 117 Lands and Agriculture, Department of, Melbourne.—Native woods. 600
- 118 Commissioners for Philadelphia Exhibition, Melbourne.—
a Boxes, paper knives, and tube, made of Victoria woods. 601
b Myall and grass-tree gum, rubber and rubber stamp. 603
- 119 Clark, John, & Sons, Melbourne.—Wattle bark. 602

Agricultural Products.

- 120 Taylor, John, Allansford.—Adelaide wheat, grown at Merunga, near Warrnambool. 600

Agricultural, Animal, and Vegetable Products.

- 120a Patience, John, Ichuca.—Purple straw wheat. 620
- 120b Wright, Thomas Spencer, Rochester.—Purple straw wheat. 620
- 120c Kelly, Mortimer, Bridgewater.—Wheat. 620
- 120d Patterson, J. Matthew, Loddon.—Wheat. 620
- 121 St. Arnaud Pastoral & Agricultural Society, St. Arnaud.—Short oats, wheat, barley. 620
- 121a O'Reilly, Thomas, Toolamba.—Wheat. 620
- 121b Adams, John, Warring.—Wheat. 620
- 121c Smith, George, Ballard.—White Tuscan wheat. 620
- 122 Scott, James, Indigo, Chiltern.—Wheat. 620
- 123 Commissioners for Philadelphia Exhibition, Melbourne.
a Collection of varieties of wheat and grass-tree plant. 620
b Collection of beans. 621
- 124 O'Keefe, Andrew, Adelaide Vale, Clare Inn.—Purple-straw wheat. 620
- 125 Myring, Joseph, Campbell's Creek, Castlemaine.—Barley. 620
- 126 Adams, James, Warring.—White Tuscan wheat. 620
- 127 Laidlaw, John, Bundoora, Plenty-road.—Wheat. 620
- 128 McNair, Angus, Bellerine East.—New fodder-pea. 620
- 129 Stewart & Ferguson, Indigo, Chiltern.—Wheat. 620
- 130 Connor, James, Allansford.—Fox-tail oats, grown at Merunga, near Warrnambool. 620
- 131 Schmitt, Lewis, Mornington.—Wheat. 620
- 132 Buckley, Edward, Newbridge, Loddon.—Red-straw wheat from counties of Gladstone and Bendigo, oats. 620
- 133 Jack, John, Oxley Plains, Ovens District.—Frampton white wheat, grown on chocolate soil after English grass. 620
- 134 Northeastern Pastoral & Agricultural Society, Murchison.—Wheat grown by J. McNab, Tabilk. 620
- 134a Catlin, James, Runnymede.—Purple-straw, white Tuscan and other wheats. 620
- 135 Mowerieff, John, Tabilk, Goulburn river.—Purple-straw and white wheat. 620
- 136 Gilmour, Andrew, Colomsky, Bangor.—Oats from parish of Ballyroan. 620
- 136a Ararat Flour Mill Co. (limited).—Prime miller's wheat. 620
- 137 Rees, Thomas, Dry Diggings, near Daylesford.—Purple-straw wheat. 620
- 138 Polson, Angus, Chapman, Moynton.—English barley, Tartarian oats, purple-straw and white wheat. 620
- 139 West Bourke Pastoral & Agricultural Society, Romsey.—White Tuscan wheat, grown by Hon. T. F. Hamilton. 620
- 140 Aboriginal Mission Station, Coranderrk.—Hops. 623

- 141 McKenzie, James F., & Co., Melbourne.—Coffee, chicory, cocoa, and chocolate made from Trinidad nuts; mustard, spices. 623

Land Animals.

- 142 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.
a Water fowl, stuffed by Chas. French. 635
b Mamma, with the insect producing it. 636
- 143 St. John, F., Melbourne.—Ducks, plover, grouse, quail, black swan, etc. 635
- 144 Grimwood, Thomas, Fern Tree Gully.—Quail, snipe, landrail. 635
- 145 Gaskell, Joseph, Melbourne.—Australian snipe. 635
- 146 Robertson, W. W., Richmond.—Australian native birds. 635
- 147 Gaskell, Joseph, Melbourne.—Wild animals. 637
- 148 Godfrey, F. R., Melbourne.—Wild animals. 637
- 149 McCoy, Prof., Melbourne University.—Wild animals, and black swan. 637
- 150 French, C., Melbourne.—Australian longicorns, buprestid, lepidoptera, etc. 638
- 151 Timbrell, Ann, Collingwood.—Japan silkworms, modeled in wax. 638

Water Animals, Fish Culture and Apparatus.

- 153 St. John, F., Melbourne.—Fish. 641

Animal and Vegetable Products.

- 154 Bird, George, Inkerman, Lyndhurst.—Cheese. 651
- 155 Pierce, G. G., Melbourne.—Cheese. 651
- 156 Riddle, J., Lancefield.—Cheese. 651
- 157 Clark, John, & Sons, Melbourne.—Leathers, skins, basils. 652
- 158 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Rugs made from skins of Victorian animals. 652
- 159 Fink, M., Geelong.—Skins. 652
- 160 Quinn, H. S., Richmond.—Dyed and white wool mats, kangaroo glove leathers. 652
- 161 Brerley Brothers, Geelong.—Sole leather. 652
- 162 Dunkley & McBride, Melbourne.—Sash lines, whip gut, gut lathe bands, sausage casings. 652
- 163 Pearse Brothers, Fremantle, Western Australia.—Hides, leather, skins. 652
- 164 Fitts, Charles, & Sons, Emerald Hill.—Glue. 652
- 165 Penal Department, Inspector-General of, Melbourne.—Leather. 652
- 166 Wallis & Co., Richmond.—Leather, goat skin mat. 652
Malt. 657
- 179 Bennett, T. K., Melbourne.—Preserved meats. 656
- 173 Director of Botanic Gardens, Melbourne.—Jam. 656

Animal and Vegetable Products, Textile Substances.

- 174 Zorn, Edward, Clayton's-road, near Oakleigh.—Tomato and Oakleigh sauces. 656
- 175 Wright, Payne, & Co., South Yarra.—Fruit jams. 656
- 176 Watson & Paterson, Melbourne.—Hams, bacon, micas pork. 656
- 177 Western Meat Preserving Co., Colac.—Preserved meats. 656
- 178 Melbourne Meat Preserving Co., Melbourne.—Preserved meats. 656
- 179 Lyon, George, Beechworth.—Tomato sauce. 656
- 180 Grant, Mrs., Richmond.—Tomato sauce. 656
- 181 Comport, Henry, Cheltenham.—Tomato sauce. 656
- 182 Stringer & Co., Melbourne.—Mixed pickles, sauces, curry powder. 656
- 182a Boddy, Edward, Nagambie.—Flour. 657
- 182b Hood, F. & J., Melbourne.—Malt. 657
- 183 McKenzie, Jas. F., & Co., Melbourne.—Oatmeal, groats, brose meal. 657
- 183c Martin, P. J., Melbourne.—Malt. 657
- 184 Trouette & Blampied, Great Western, Ararat District.—Wines. 660
- 184d Myring, Joseph, Campbell's Creek, Castlemaine.—Malt. 657
- 185 Best, Joseph, Great Western, Ararat District.—Wine. 660
- 185c Perrin, William, jr., Richmond.—Malt. 657
- 186 Docker, F. G. & J. B., Wangaratta, Beechworth District.—Wine. 660
- 187 Evans, Henry, Beechworth District.—Wine. 660
- 188 Mellon, Francis, Dunolly, Castlemaine District.—Wines. 660
- 189 Botten, William, Eddington, Castlemaine District.—Wine. 660
- 190 Jung, Otto, Castlemaine, Castlemaine District.—Wines. 660
- 191 Schroeder, Castlemaine, Castlemaine District.—Wines. 660
- 192 Crippa, Fabrizio, Hepburn, Castlemaine District.—Wine. 660
- 193 Greer & Co., Echuca, Echuca District.—Wines. 660
- 194 Vettler, John, Echuca, Echuca District.—Wines. 660
- 195 Weber, Jacob, Geelong, Geelong District.—Wine. 660
- 196 Deppeler, Jacob, Oherlaghap, Geelong District.—Wine. 660
- 197 Ritchie, John, Murgheboluc, Geelong District.—Wine. 660
- 198 Bear & Ford, Tabilk Vineyard, near Seymour, Goulburn District.—Wine. 660
- 199 Egli, F., Tabilk, Goulburn District.—Wine. 660
- 200 Schmitt, Franz, Berwick, Melbourne District.—Wine. 660
- 201 Francis, Charles, Sunbury, Melbourne District.—Wines. 660
- 202 St. Hubert's Vineyard Co., Yering, Melbourne District.—Wines. 660
- 203 Johnston, J. S., Craiglie Vineyard, Sunbury, Melbourne District.—Wines. 660
- 204 Maplestone, Charles, Ivanhoe Lodge, Heidelberg, Melbourne District.—Wines. 660
- 205 Brasche, Charles, Sunbury, Melbourne District.—Wine. 660
- 206 Snowden, E. G., Boroondara, Melbourne District.—Wine. 660
- 207 Smith, G. S., Wahgunyah, Melbourne District.—Wine. 660
- 208 Pohl, Carl, Strathfieldsaye, Sandhurst District.—Wines. 660
- 209 Bruhn, Albert, Strathfieldsaye, Sandhurst District.—Wines. 660
- 210 Fuchs, Adolph, Strathfieldsaye, Sandhurst District.—Wines. 660
- 211 Fischer, August, Shamrock Vineyard, Emu Creek, Strathfieldsaye, Sandhurst District.—Wines. 660
- 212 Shaw, F. K., Goornong, Sandhurst District.—Wine. 660
- 213 Grosse, Frederick, Strathfieldsaye, Sandhurst District.—Wines. 660
- 214 Grosse, Fred., Toorongo Vineyard, Bendigo, Sandhurst District.—Wine. 660
- 215 Greiffenhagen, Wm., Strathfieldsaye, Sandhurst District.—Wines. 660
- 216 Brown, H. J., Australian Distillery, Melbourne.—Geneva spirits of wine. 660
- 217 Fuller, Alfred, Kew.—Ale, stout. 660
- 218 Henelly, James, Melbourne.—Ale. 660
- 219 Latham, Edward, Carleton Brewery, Carleton.—Ale, porter. 660
- 220 Martin, P. J., Melbourne.—Ale. 660
- 221 Reed, Henry, & Co., South Yarra.—Vinegar. 660
- 222 Steward, James, Eaglehawk, Sandhurst.—Ale. 660
- 223 Treacy, John, & Co., Geelong.—Ale, stout. 660
- 224 Warrenhelp Distillery Co., Ballarat.—Whisky, Geneva spirits of wine. 660
- 225 Guest, T. B., & Co., Melbourne.—Fancy biscuits. 661
- 226 Smith & Son, West Melbourne.—Biscuits. 661
- 227 Swallow & Ariell, Sandridge.—Biscuits. 661
- Textile Substances of Vegetable or Animal Origin.**
- 228 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Cotton. 663
- 229 Atkinson, Wm., Camperdown.—Fazelas. 666
- 230 Longmire, Thomas, Korooscheang, Smeaton.—Flax stalks and seeds. 666
- 231 McPherson, Thomas, & Co., Melbourne.—Jute. 666
- 232 Armstrong, Alex., Warramtime, Shelford.—Wools. 667
- 233 Arnold, George, & Co., Melbourne.—Assorted wools grown by James Gibson, Cleveland, Tasmania; Wm. Gibson & Son, Scone, Tasmania; P. Russell, Lang Willi and Carnham, Victoria; Wm. Cumming, Mt. Pyans, Victoria; A. M. Campbell, Melaluka, Victoria; John

Textile Substances, Agricultural Machinery, Fruits.

- Maclean, Mooloomoon, Victoria; Thos. Russell & Co., The Plains, Victoria; G. W. Thomson, Chalicum, Victoria; Thos. Millar, Green Vale, Victoria; Executors of late A. Russell, Mawallok, Victoria; Wm. Lewis, Stoneleigh, Victoria; J. & S. Austin, Mount Pleasant, Victoria; and Wm. Murray, Brie Brie, Victoria. 667
- 334 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Wools; wool from S. Robertson, Geelong. 667
- 334 Cumming, Thomas F., Stoney Point. 667
- 335 Currie, John Lang, Larra, Derimallum.—Wools. 667
- 336 Degraives, C. & J., Coliban Park, Elphinstone.—Wool. 667
- 337 Elder, W. & N. G., Elder, Rookwood.—Wools. 667
- 338 Gilbert, Alfred N., Warwilla Station, Wanganilla, Deniliquin.—Wools. 667
- 339 Goldsbrough, R., & Co., Melbourne.—Assorted wools, grown by James Alexander, Woodhouse station; R. & J. Ramsey, Narrow Plains station; Carter Bros., Glenista station; J. & H. Osborne, Momalong Plains; A. & H. McCulloch, and others. 667
- 340 Greeves, Edward G., Berrialllock, Sipton.—Wool. 667
- 341 Hastings, Cunningham, & Co., The Australian Wool Stores, Melbourne.—Fleeces of wool from the following breeders: H. Cattinach, Tellegara; C. W. Simson, Mundagai; Godfrey & Chambers, Pevensey; F. L. Parker, Quiamong; Everett & Watson, Tchelery and Nyang; Hon. Wm. Lang, M. L. A., Wargam; Hon. Phillip Russell, M. L. A., Carringham and Langi Willi; John L. Currie, Larra; Thomas Dowling & Sons, Jellalabad; executors of late A. Russell, Mawallok; Wm. Lewis, Stoneleigh; Ewan McPherson, Binduck; Godfrey McKinnon, Goomambill; Russell & Shaw, Elwah; Rutherford Brothers, Clupna; Hon. Robert Simson, M. L. A., Langi Kal Kal; Nichol & Telford, Tarrawonga; Knight & Lydiard, Koorongah; Mount Battery Co., Mount Battery; Alfred Chenery, Delatite; Alexander Wilson, Mount Emu; J. G. Reeves, Footscray. 667
- 342 Henty, Edward, Portland.—Wools. 667
- 347 Reeves, Isaac G., Footscray, Melbourne.—Wool. 667
- 348 Russell, Thomas, Baruah Plains, Mount Hesse.—Wool. 667
- 349 Rutledge, William, Farnham Park, Warrnambool.—Fleeces. 667
- 350 Rutherford, Andrew, Como, Kensington, Geelong.—Wool. 667
- 351 Synnot, Monckton, Melbourne.—Wool. 667
- 352 Synnot, George, & Co., Geelong.—Wool. 667
- 353 Thomas, C. T., North Sandridge.—Dressed skin of pure Romney ewe, bred by R. Muldoon, Boos. 667
- 354 Timms Brothers, Mount Hesse, Beac.—Wools. 667
- 355 Watson, Alexander, Warribee.—Fleeces. 667

- 256 Wilson, Sir Samuel, Oakleigh Hall, East St. Kilda.—Wools and fleeces. 667
- 257 Wilson, John, Lismore.—Wool. 667
- 258 Howard, John, near Albury.—Sample cocoons of mulberry silk-worms, with wound silk in its natural color; floss silk; Japanese and Italian grain; hanks of suffocated and pierced cocoons. 668

Machines, Implements, and Processes of Manufacture.

- 259 Lennon, Hugh, North Melbourne.—Double-furrow plow. 670
- 260 Bodington, Robert, Carlton.—Sheep support on rollers. 674

Ornamental Trees, Shrubs, and Flowers.

- 261 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Tree ferns from Dandenong State Forest and Mount Macedon; lodea ferns from Mount Macedon. 707
- 262 Commissioners for Victoria, for the Philadelphia Exhibition, Melbourne.—Fac-similes of specimens of fruit, the originals of which were selected during the past season, modeled and arranged by Thos. McMillan:
- a Apples and pears from Josiah Trevelan, Ballarat; Chas. Draper, Hazelghen; H. U. Cole, Twyford; Robert Whatmough, Greensborough; Horticultural Society of Victoria; John Harbison, Kewendong; John Smith & Sons, Riddell's Creek; T. C. Cole; King & Sons, Fyansford; Geelong and Western District Agricultural and Horticultural Society; W. L. Hunt, Malvern; Chas. Allen, jr., South Brighton; Thos. Christian, Mount Macedon; W. Lawford, Doncaster; J. Carson; J. Roberts; H. Boyce; Mr. Freake, Carisbrook; C. May, Sunbury; J. C. Cole, Richmond; J. D. Roberts, Hawthorne; Robt. Hepburn, Hawthorne; A. Stuart, Toorak; Geo. Kilroy, Caulfield; J. Weber, Geelong; Jas. Lang, Harcourt; Sir Redmond Barry; J. Bunks, Flemington; Mr. James, Ballarat; Jos. Bosisto, Richmond; and Joseph Webster Wahgunyah.
 - b Quinces from Sir Redmond Barry and J. Webber, Geelong.
 - c The medlar and the loquat.
 - d Peaches from C. Draper, R. Whatmough, W. Lawford, J. McDonald, G. & W. D. Agricultural and Horticultural Society.
 - e Nectarines from R. Whatmough and market.
 - f Apricots, plums, cherries, and olea europaea.
 - g Grapes, mulberries, figs, pomegranates, and oranges.
 - h Kau apples from Mr. Graham and the Melbourne Botanical Gardens.
 - i Gooseberries from Thos. Lang & Co. and F. Moss, Bushinyang.
 - j Black, red, and white currants from Thos. Lang & Co.
 - k Raspberries from Henry Boyce.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 97-98.

Fruits, Flowers.

- / Almond, walnut, and hazel nuts.
 * Strawberries.
 * Tomatoes from Horticultural Society's
 Gardens: W. Chandler, Scoresby; and
 King & Son, Fyansford.
 • Egg apple from H. J. Dines.

- † Cape gooseberries and capsicums.
 ‡ Book collection of plants, shrubs, trees,
 and herbs. 709

263 Gaskell, Mrs., Melbourne.—Fac-
similes of Victorian bush flowers. 709

SOUTH AUSTRALIA.

(North of Nave, Columns 10 to 17.)

COLLECTIVE EXHIBIT.

Minerals, Chemicals, Manufactures, Clothing.

Minerals, Ores, Stone, Mining
Products.

- 1 Clark, F., & Sons, Adelaide.—Iron
ores. 100
- 2 Balhannah Mining Co., Adelaide.—
Copper ores and bismuth. 100
- 3 North Yelta Mine, near Adelaide.—
Copper ores. 100
- 4 Moonta, Wallaroo, and other mines,
near Adelaide.—Copper ores. 100
- 5 Crabb, R. S., Adelaide.—Azurite and
malachite from the Burra Burra mine,
near Adelaide. 100
- 6a South Australian Commissioners.
—Specimens of gold quartz from the
northern territory. 100
- 6b Coozong Oil & Coal Co.—“Cooson-
gik,” a mineral caoutchouc. 100

COLLECTIVE EXHIBIT OF AURIF-
EROUS QUARTZ FROM THE NORTHERN
TERRITORY OF SOUTH AUSTRALIA, BY THE
COMMISSIONERS, FOR THE FOLLOWING
OWNERS. 100

- 6 Ayliffe, I. H., W. Union Mine.
- 7 Becker, I., Yam Creek.
- 8 Brese & Starke, Extended Union
Mine.
- 9 Caledonia New Amalgamated Co.
- 10 Golden Stream Claim.
- 11 Griffiths, W. K., South Union Mine.
- 12 Grove Hill Co.
- 13 Gunn, J. H., Britannia Reef.
- 14 Lewis, John, Pine Creek.
- 15 Bernardo, M., Pine Creek.
- 16 New Telegraph Co.
- 17 Sandy Creek Claim.
- 18 Shepperd, E., John Bull Reef.
- 19 Sandy Creek Puddling Co.

20 Tripp, J. P., Lady Alice & Union
Reef.

21 Union Prospectors Co.

22 Whitelaw, E. H., Pine Creek.

23 Westcott, J. S., & Wisendunger, I.,
North Union Mine.

24 South Australian Commissioners,
Adelaide.—Marble, sandstone, and slate
from quarries near Adelaide. 709

Chemical Manufactures.

25 Bernard, George L., Adelaide.—
Olive oil. 201

26 Davenport, Samuel, Adelaide.—
Olive oil. 201

Yarns and Woven Goods of Vegetable
or Mineral Materials.

27 Knight, J. G., Adelaide.

a String made from human hair. 259

b Native bag used by Lubras (women). 230

Clothing, Jewelry, and Ornaments,
Traveling Equipments.

28 Steiner, Henry, Adelaide.

a Shell necklace, gold brooch and earrings;
shell brooch and earrings set in gold. 253

b Silver-mounted emu vases and ornaments;
silver oxidized metal-figured piano candle-
sticks. 254

29 Davenport, Samuel, Adelaide.—
Emu eggs made up in imitation of jew-
elry. 253

30 Nitscke, W., Adelaide.—Copper
vase, cross, and pipe; silver cups made
from a dollar and a five-franc piece; tea-
pot made from a shilling. 254

31 Knight, J. G., Adelaide.—Aboriginal
ornaments from the northern territory of
South Australia. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Manufactures, Education, Art, Agriculture.

- 32 Steiner, Henry, Adelaide.—Silver-mounted emu egg inkstands. 254
 33 Wendt, J. M., Adelaide.—Silver-mounted emu egg inkstand. 254
 34 South Australian Commissioners, Adelaide.—Skins of indigenous birds and animals of South Australia made into muffs, collarettes, etc. 256

Military and Naval Armaments, Ordnance, Fire Arms, and Hunting Apparatus.

- 35 Knight, J. G., Adelaide.—Aboriginal weapons from the northern territory of South Australia. 269

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 36 South Australian Commissioners, Adelaide.—Iron castings made from Adelaide ore. 283

Educational Systems, Methods, and Libraries.

- 37 South Australian Commission, Adelaide.—Herbarium, comprising specimens of all the known plants indigenous to South Australia, prepared by Dr. Schomburgk, director of the Botanic Gardens at Adelaide. 301

- 38 Adelaide Museum, Adelaide, F. G. Waterhouse, curator.—Collection of birds, mammals, reptiles, skins of animals, and eggs of South Australia. 301

Engineering, Architecture, Charts, Maps, and Graphic Representations.

- 39 South Australian Commissioners, Adelaide.—Statistical records and maps relating to South Australia, compiled by the Surveyor-General. 335

Photography.

- 40 Scott, G. B., South Australia.—Photograph of northern territory of South Australia. 430
 41 South Australian Commission, Adelaide, South Australia.—Photographs descriptive of town, pastoral, and farming life in South Australia, the Adelaide Botanic Gardens, suburban views, and mining. 430
 42 Angus, G. H., Collingwood, near Adelaide.—Photographs of stud stock. 430

Arboriculture and Forest Products.

- 43 Hardy, Arthur, Mt. Lofty, near Adelaide.—Cork from tree raised from an acorn imported from Spain in 1864. 600
 44 Davenport, Samuel, Adelaide.—Woods, useful and ornamental. 600
 45 South Australian Commissioners, Adelaide.
 a Woods, useful and ornamental, from the northern territory of South Australia, forwarded by J. B. Scott, government resident; woods from the neighborhood of Adelaide, collected by Mr. Mais, engineer in chief, and others. 600
 b Fungi, supplied by W. B. Hughes, northern territory of South Australia. 604
 c Red berries (seeds of the creeping licorice) and corkscrew pine seeds, from J. E. Kelsey and W. B. Hughes, northern territory of South Australia. 605

- 46 Wilke, H., & Co., Port Adelaide.—Barks for tanning; ground and chopped mimosa (black wattle), and ground acacia. 602
 47 Knight, J. G., Adelaide.—Bark from the northern territory of South Australia. 602

Pomology.

- 48 South Australian Commissioners, Adelaide.—Wax models of fruit taken from originals grown in South Australia. 610

Agricultural Products.

- 49 Carling, Thomas, Adelaide.—Wheat. 620
 50 Riggs, John, Adelaide.—Wheat. 620
 51 Young, C. B., Adelaide.—Wheat. 620
 52 South Australian Commissioners, Adelaide.
 a Wheat, barley, oats, and rye. 620
 b Peas. 621
 c Linseed; hemp, rape, sunflower, prairie and rib grass seed. 624
 53 Kelsey, J. E., Mt. Gambler, Adelaide.—Hops, grown in volcanic soil. 623

Water Animals, Fish Culture and Apparatus.

- 54 Cardwell, Robert, Port Essington, northern territory of South Australia.—Trepang, cured at the fishery, Port Essington, northern territory of South Australia. 644

Animal and Vegetable Products.

- 55 Kemp, W., Adelaide.—Sheepskins mats. 652
 56 Angus, J. H., Collingwood, near Adelaide.—Sheepskins; skins of the spotted emu. 652
 57 South Australian Commissioners, Adelaide.
 a Dressed skins of the kangaroo, wallaby, and other indigenous animals; also, skins made up in designs. 652
 b Emu eggs. 653
 c Raisins, plums, figs, and currants. 656
 d Wines. 660
 58 Davenport, Samuel, Adelaide.
 a Skins of native animals and birds. 652
 b Emu eggs. 653
 59 Bagot, E. M., Adelaide.—Extract of meat. 656
 60 Hardy, Thomas, Adelaide.
 a Raisins and currants. 656
 b Wine. 660
 61 Murray, Alexander, near Adelaide.—Jams, jellies, and marmalades. 656
 61a McEwen, George, Adelaide.—Assorted jams. 656
 62 Dunn, John, & Co., Adelaide.—Flour. 657
 63 Magarey, Thomas, & Co., Adelaide.—Flour. 657
 64 Cowan, Thomas, & Co., West Adelaide.—Flour. 657
 65 Gilbert, Joseph, Pewsey Vale, Adelaide.—Wine. 660

Wines, Textiles.

- 66 Clark & Crompton, Adelaide.—
Wines. 660
- 67 Richman, J. W., Watervale.—Wines.
660
- 68 Quick, H. C., Marden, Adelaide.—
Wines. 660
- 69 Ross, R. D., Highercombe, Ade-
laide.—Wines. 660
- 70 Kaines, John H., Adelaide.—
Wines. 660
- 71 Auld, Patrick, Magill, Adelaide.—
Wines. 660
- 72 Barnard, G. L., Adelaide.—
Wines. 660
- 73 Hornabrook, C. A., Adelaide.—
Wines. 660
- 74 White, George, Rosefield, Adelaide.
—Wines. 660
- 75 Baker, Isabella, Morialta, Adelaide.
—Wines. 660
- 76 Gillard, Joseph, Adelaide.—
Wines. 660
- 77 Ind, G. F., Paradise, Adelaide.—
Wines. 660
- 78 Foote, Henry, Adelaide.—Wines. 660
- 79 Holbrook, J. D., Adelaide.—
Wines. 660
- 80 Kelly, Dr., Tintara, Adelaide.—
Wines. 660
- 81 Salter, W., & Son, Saltram, Ade-
laide.—Wines. 660
- 82 Davenport, Samuel, Beaumont, Ade-
laide.—Wines. 660
- 83 Martin, James, Gawler, Adelaide.—
Wines. 660
- 83a Young, C. B., Adelaide.—Wine. 660
- 84 Thornber, Unley, Adelaide.—
Wines. 660

- 85 Wright, E. W., Horne Park, Ade-
laide.—Wines. 660
- 86 Bickford, A. M., & Sons, Adelaide.
—Bitters, quinine wine, and lime-juice cor-
dial. 660
- 87 Davis, F. C., Adelaide.—Bitters and
cordials. 660
- 88 Nitschke, W., Adelaide.—Cordials
and liquors. 660

Textile Substances of Vegetable or
Animal Origin.

- 89 Angus, J. H., Collingrove, Adelaide.
—Wool. 667
- 90 Keynes, Joseph, Keynton, Adelaide.
—Wool. 667
- 91 Murray, John, Murrayvale, Ade-
laide.—Wool. 667
- 92 Graham, Thomas, Adelaide.—
Wool. 667
- 93 Browne, W. J., Moorak, Adelaide.
—Wool. 667
- 94 Hayward, Armstrong & Co., Wo-
noka, Adelaide.—Wool. 667
- 94a Crozier, W., Adelaide.—Wool. 667
- 95 McFarlane, Allan, Wellington
Lodge, Adelaide.—Wool. 667
- 95a Price & Browne, Adelaide.—
Wool. 667
- 96 Wurm, Frederick, Adelaide.—Silk
and silk cocoons. 668

Agricultural Engineering and Ad-
ministration.

- 97 Dalwood, W. F., Adelaide.—Gua-
no from Browse Island, off west coast of
Australia. 681

For names of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

CAPE OF GOOD HOPE.

(South of North Aisle, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures, Education and Science.

Minerals, Ores, Stone, Mining Products.

- 1 Cape Copper Mining Co. (limited), Cape Town.—Copper ores from Ookiep, Spectakel, Narrap, Karolusburg, and Kilderman mines, Little Namaqualand. 100
- 2 Bright, H. C. R., Mowbray, near Cape Town.—Copper ores and collection of minerals. 100
- 2^a Muskett, E. B.—Galena from Banghoek mine, Hope Town division. 100
- 3 Dickson, W. W., Cape Town.—Black oxide of manganese, from Hercules mine. 100
- 4 Stonestreet, Samuel, Kimberly Diamond Fields.—Diamonds and associated rocks. 100
- 5 Vice, G., Stormbergen. 100
- 5 Salpêtre from the Stormbergen. 100
- 6 Coal from the Stormbergen. 101
- 6 Wilson, A., Gas Works, Cape Town.—South African coals, cokes, and ashes. 101

Metallurgical Products.

- 7 Cape Copper Mining Co. (limited), Cape Town.—Copper. 111

Chemical Manufactures.

- 8 Smithers, J. & G., Cape Town.—Soaps. 201

Furniture and Objects of General Use in Construction and in Dwellings.

- 9 Moulton, R., Swellendam.—Work-box constructed of South African woods. 217
- 10 Leaar, W., Cape Town.—Table constructed of various colonial timbers. 217

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 10^a Cawood, Hon. S., Grahamstown.—Cotton table cloth. 230

Clothing, Jewelry, and Ornaments, Traveling Equipments.

- 11 Perry, Mrs., Cape Town.—Melon seed necklaces, bracelets, etc. 253
- 12 Gladwin, J. P., Kafirland.—Hair of Pondoise, surmounted by ring of Euphorbia jap; ivory earrings of Pondoise baboon skin; dress of witch doctor. 253

13 Local Committee, Cape of Good Hope.

- a Native articles of dress—necklaces, armlets, earrings etc. 253
- b Native aprons, head-dress, etc. 254

14 Aylliff, Mrs., Grahamstown.—Skeletized flowers. 254**Weapons, etc.**

- 15 Local Committee of Cape of Good Hope.—Knob kerie of rhinoceros horn. 268

16 Vigors, P., Cape Town.—Native weapons, Kafir assegais, Bushman axe. 268**Medicine, Surgery, Prothesis.**

- 17 Auret, W. H., Paarl.—Vegetable drugs and medicines. 272
- 18 Barkly, Sir H., Governor of Cape Colony.—Bitter barks used by Kafir doctors in fever cases. 272

Fabrics of Vegetable, Animal, or Mineral Materials.

- 19 Local Committee of Cape of Good Hope.—Kafir beer and milk pots, Kafir and Basuto baskets. 289

Educational Systems, Methods, and Libraries

- 20 Solomon, C., Cape Town.—Map of South Africa. 300
- 23 Solomon, Saul, & Co., Cape Town.—Specimens of bookbinding. 306
- 24 Local Committee of Cape of Good Hope.—Catalogue of South African Public and Sir G. Grey's libraries; University calendar; reports of South African Museum, Public Library, and Botanic Gardens; Dr. Bleek's Bushman Researches. 306
- 25 Juts, J. C., & Co., Cape Town.—Books. 306
- 26 Mabile, A., Morija, Basutoland.—Books printed, bound, and published at Morija Mission Station, Basutoland. 306
- 27 Stewart, G., Lovedale, Kafirland.—Books printed, bound, and published at the Lovedale Kafir Mission Institution. 306

Engineering, Architecture, Maps, etc.

- 28 Local Committee of Cape of Good Hope.—Models of harbor works and dry docks at Cape Town. 330

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Art, Agricultural, Animal, and Vegetable Products.

- 29 Dunn, E. I., Cape Town.—Geological sketch map of Cape Colony. 335
- 29^a Coates, H. C., Commissioner, Philadelphia, Pa.—Photograph of city of Cape Town. 335
- 29^b Ayliff, Reuben, Grahamstown.—Photographs of Cape Town, harbor works, etc. 335

Paintings.

- 30 Hermann, W., Cape Town.—Oil paintings. 410
- ^a View in Knysna Forest, Cape Colony. 410
- ^b View of Three Anchor Bay, near Cape Town. 410
- 31 Coppen, F., Cape Town.—Water color sketches. 411
- ^a Sketch of Hangklip, a spur of the Stormbergen, Queenstown division. 411
- ^b Sketch of the Mac Mac Falls, Lydenburg gold fields, South African Republic. 411
- 32 Hays, Miss Anna, Cape Town.—Water color sketch of the native population of Cape Town. 411
- 33 Hermann, W., Cape Town.—Six water color sketches of colonial scenery. 411
- 34 Thwaites, Miss F. C., Cape Town.—Six water color drawings of indigenous Cape flowers. 411

Engraving and Lithography.

- 35^a Bruton, C. I., Cape Town.—Photographs. 430
- ^a Views in Cape Town. 430
- ^b View of Kloof Lodge, near Cape Town. 430
- ^c Views of scenery around Cape Town. 430
- 35^b Barnard, S. B., Cape Town.—Photographs of Cape Town, natives, etc., in a book. 430
- 35^c Penneysey, C. D., George.—Photographs of colonial scenery 430

Arboriculture and Forest Products.

- 36 Carson, E. J., Ookiep, Namaqualand.—Ebony. 601
- 37 Holland, B. H., Alexandria, Cape Colony.—Specimens of timber from the Alexandria crown forests, with articles made from various woods. 601
- 38 Mossop & Garland, Cape Town.—Barks in the rough and ground. 602
- 39 Smithers, J. & G., Cape Town.—Veg-etable wax. 603
- 40 Dale, Dr., Cape Town.—Vegetable wax. 603

Agricultural Products.

- 41 Barry, Arnold, & Co., Cape Town.—Wheat. 620
- 42 Myburgh, N., Meerlust, Eerste river.—Wheat. 620
- 43 Barry & Herdon, Mossel Bay.—Aloes. 623
- 44 Barry & Nephews, Cape Town.—Aloes. 623
- 45 Jongh, S. J. de, Cape Town.—Snuff. 623
- 46 Powrie, E., Mossel Bay.—Leaf tobacco and snuff. 623

Land Animals.

- 46^a Coates H. C., Commissioner, Philadelphia, Pa.—King penguin. 635
- 47 Gibbon, J. M., Cape Towns.—Gochi-neal, grown and dried in the Botanic Gardens, Cape Town. 638

Water Animals, Fish Culture and Apparatus.

- 48 Merriman, John, Cape Town.—Preserved crayfish from Table Bay. 643
- 49 Moodie, D., Swellendam.—Pearl oyster shells from the south coast of the colony. 645

Animal and Vegetable Products.

- 50 Dier & Diets, Port Elizabeth.—Skins. 652
- 50^a Benningfield & Son, Natal.—Elephant tusks. 652
- 51 Mossop & Garland, Cape Town.—Leather. 652
- 52 Local Committee, Cape of Good Hope.—Robe of skins of the blackbacked jackal and avar wolf. 652
- 53 Dickson, W. W., Cape Town.—Skins of the lion and cheetah or hunting leopard. 652
- 53^a Coates, H. C., Commissioner, Philadelphia, Pa.
- ^a Pair of horns and head. 652
- ^b Ostrich eggs. 653
- 54 Vigors, P., Cape Town.—Lion and leopard skulls, head of a leopard, antelope and rhinoceros horns. 652
- 54^a Clipp, G. W.—Pair of horns. 652
- 55 Local Committee of Cape of Good Hope.—Ostrich feathers and eggs. 653
- 56 Douglass, A., Grahamstown.—Ostrich incubator, with stuffed ostriches and eggs. 653
- 57 Powrie, E., Mossel Bay.—Beeswax. 654
- 58 Barry & Nephews, Cape Town.—Beeswax. 654
- 59 Toit, A. L. du, Rondebosch.—Grapes in brandy. 656
- 59^a Volateedt, P. J., Cape Town.—Preserved lemons, citrons, nartjes, bitter oranges, melons, and Cape gooseberries. 656
- 60 Merwe, J. H. van der, Robertson.—Grapes in brandy. 656
- 60^a Merriman, John, Cape Town.—Preserved tomatoes and Cape gooseberries. 656
- 61 Faick, J. A. H., Montagu.—Peaches in brandy. 656
- 62 Clear, E., Cape Town.—Wheat flour. 657
- 63 Letterstedt & Co., Cape Town.—Wheat flour. 657
- 64 Barry, Arnold & Co., Cape Town.—Wheat flour. 657
- 65 Heydensrych, B. G. F., Cape Town.—Starch from wheat flour. 658
- 74 Ryn, J. H. van, Cape Town.—Pot-tac, red, and white wines, brandy. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 47-48.

Wines, Textiles, Flower Work.

- 75 Renen, S. van, & Co., High Constantia.—Red and white wines. 660
- 76a Cloete Brothers, Constantia.—Red and white wines. 660
- 76 Anderson & Murison, Cape Town.—Pontac, pale, and golden sherry wines. 660
- 76a Cloete, H., Bellevue, Constantia.—Red and white wines. 660
- 77 Green, E. K., Cape Town.—Red, white, and sherry wines. 660
- 78 Collison, H. C., Cape Town.—Sherry, Madeira, Pontac, and Constantia wines. 660
- 78a Cloete, J. P., Groot Constantia.—Red and white wines. 660
- 79 Joubert, W. A., Stellenbosch.—Dry white wine. 660
- 80 Paarl Wine and Brandy Co., Paarl.—Red and white wines. 660
- 81 Rosenberg, S., Cape Town.—Brandy. 660
- 82 Barry & Nephews, Cape Town.—Brandy. 660
- 83 Collison, H. C., Cape Town.—Cognac. 660
- 84 Hauf, Dr., Robertson.—Brandy. 660
- 85 Marais, H. H., Robertson.—Cape sherry wine and Congo brandy. 660
- 86 Villiers, A. J. J. de, Cape Town.—Sherry, port, and red wines. 660
- 87 Villiers, A. B. de, Paarl.—Red and white wines. 660
- Textile Substances of Vegetable or Animal Origin.**
- 88 Cawood, Hon. S., Grahamstown.—Cotton. 665
- 89 Grewar, John W., Uitenhage.—Wool. 667
- 90 Priest, W., Graff Reinet.—Wool. 667
- 91 Rubidge, C., Graff Reinet.—Wool. 667
- 92 Stewart, A. C., Port Elizabeth.—Wool. 667
- 93 Court, P. W., Port Elizabeth.—Wool. 667
- 94 Barry & Nephews, Cape Town.—Wool. 667
- 95 Barry, Arnold, & Co., Cape Town.—Wool. 667
- 96 Dier & Diets, Port Elizabeth.—Wool. 667
- 97 Stewart, A. C., & Co., Port Elizabeth.—Angora hair. 669
- Ornamental Trees, Shrubs, and Flowers.**
- 98 Villiers, Miss de, Fransche Hoek.—Articles made of everlasting flowers. 709
- 99 Smuts, Miss G., Cape Town.—Articles made of everlasting flowers. 909

JAMAICA.

(North of Nave, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Chemicals, Woven Goods, Clothing.

Chemical Manufactures.

- 1 Reynolds, John N.—Salt. 200
- 2 Frith & Murphy.—Salt. 200
- 3 Grant, Charles.
a Bisulphate of lime. 200
b Chewstick powder and odontine. 203
- 4 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Essential oils. 203
- 5 Auvray, P. E.—Odontine. 203

Farms and Woven Goods of Vegetable or Mineral Materials.

- 6 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Palm and plantain leaf mats. 229

Clothing, Jewelry, and Ornaments, Traveling Equipments.

- 7 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Palm leaf hats. 223
b Baskets and fans from leaves; shell baskets; walking sticks; bamboo whip; tortoise shell combs, necklaces; napkin rings and egg cups; doilies and fans made of lace bark. 224
- 7a Nash, Mrs.
a Hats made of dagger plant, lace bark, and strainer fibre. 251
b Dagger plant and lace bark ornaments, comprising fans, flowers, baskets, etc.; earrings and brooch made of lobster shell. 254
- 8 Brooks, Mrs. G.—Doilies and fans made from lace bark, etc. 254

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Manufactures, Agricultural, Animal, Vegetable Products.

- 8a Reid, William.—Cocconut Shell Ornaments; walking sticks, etc. 254

Paper, Blank Books, and Stationery.

- 9 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Rulers. 258
b Paper stock. 260

Medicine, Surgery, Prothesis.

- 10 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Cinchona barks, jalap, sena, aloes, etc. 272

Hardware, Edge Tools, Cutlery, and Metallic Products

- 11 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.—Razor strops made from stems of plants. 281

Fabrics of Vegetable or Mineral Materials.

- 12 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Brushes from the penitentiary. 286
b Ropes from sisal hemp; coir; wild cotton, cocconut, etc. 287
c Bamboo baskets. 289

Carriages, Vehicles, and Accessories.

- 13 Brass, John, & Son.—Carriage harness and riding saddle. 296

Arboriculture and Forest Products.

- 14 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Cedar and juniper shingles; lancewood, etc., for carriage building; cashaw, etc., for railway sleepers; pimento leaves, juniper wood, etc., for making perfumery. 600
b Mahogany, cedar, bullet tree, braziletto, lignum vitae, ebony, satinwood, rosewood, etc. 601
c Logwood, fustic, annatto, turmeric, etc.; divi-divi, mangrove, catechu, guanga, etc. 602
d Dried ferns. 604
15 Pantrepant Estate.—Lace bark. 600
16a Fisher.—Concrete for tanning. 602

Agricultural Products.

- 16 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Peas and beans. 601
b Ginger, pimento berries, nutmegs, vanilla, cayenne pepper, etc.; tobacco, tea, cocoa, and chocolate; coffees from the following parties, John McLean, Francis Chalmers, John Davidson, Mrs. MacLaverly, Mrs. Lascelles, Dr. Stephens, James Harrison, Ernest Elliott, and Geo. Henderson. 603

- 16a Thompson & Weitzmann.—Tobacco. 623
16b Espent, W. B.—Cigars. 623
17 Soutar & Co.—Tobacco and cigars. 623
17a Major, Dr.—Nutmegs. 623
18 Richards, W. S.—Coffee. 623

Animal and Vegetable Products.

- 18a Fisher.—Leather. 632
19 Grant, Charles.—Beeswax. 654
20 Brass, John, & Son.—Honey and beeswax. 654
20a Fegan.—Bleached wax. 654
21 Auvray, P. E.—Bleached wax. 654
22 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Candied fruits and preserves; pickles, etc.; fruits preserved in alcohol; meal made from plantains, bananas, camava, bread, and other fruits. 656
b Corn, rice, and flour. 657
c Starch, arrowroot, etc. 658
d Sugars from the following parties: W. S. Richards, Albion estate and Constant Spring estate; Louis Verley, Mona estate; Ernest Elliott, Bog estate; James Harvey, Hillside estate; Joseph Reid, Caymannas estate, and J. McPhail. 659
e Rums from the following parties: David Galloway, Vale Royal estate; William Vickers, Frome, and other estates; M. C. Morgan, Appleton estate; James Harrison, Hordley and other estates; Plato Elphick, Belvidere estate; W. S. Richards, Hopewell estate; Ernest Elliott, Bog and other estates; Louis Verley, Mona estate; C. W. Steer, Blenheim estate; F. Hall, Mexico estate; James Harvey, Hillside estate; Joseph Reid, Camanas estate; J. Wray & Nephew, George J. Peynado, Alberga & Mitchell. 660
f Cocconut, castor, groundnut, and other oils. 662
22a Espent, W. B.—Rum. 660
23 Gadpaille, Charles.—Rum. 660
23a Wray, J., & Nephew.—Orange and ginger wine, pimento dram, lime-juice, etc. 660
24 Melville, James.—Rum and Fajernian wine. 660
25 Desnoes, P., & Son.—Rum, ginger cordial, orange wine, pimento dram, etc. 662
25a Alberga & Mitchell.—Orange and ginger wine, pimento dram, chutney, etc. 662
26 Nunes, Robert.—Rum. 660
27 King, Alexander, & Co.—Rum and lime-juice. 660

Textile Substances of Vegetable or Animal Origin.

- 28 Thomson, Robert, Superintendent of Botanical Gardens, Kingston, for the government.
a Wild cotton. 662
b Sisal hemp, China grass, pineapple, coir, bamboo, mahoe trumpet tree, bastard cedar, and other fibres, etc. 662

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-28.

BAHAMAS.

(South of North Avenue, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Manufactures, Agricultural, Animal, Vegetable Products.

Chemical Manufactures.

- 1 Sargent, D., Inagua.—Specimens of salt and table salt. 200
- 2 Meadows, John G., Inagua.—Salt and table salt. 200

Furniture and Objects of General Use in Construction and in Dwellings.

- 3 Robertson, Mrs. S. E.—Epergne. 218
- 4 Dorsette, Thomas.—Dripstone for filtering water. 224

Clothing, Jewelry, and Ornaments, Traveling Equipments.

- 5 Minna, Albert C. J.—Necklaces, locket, pin and earrings, bracelets, solitaires and studs, vest button, spoon, and paper knife. 253
- 6 Dupuch, Joseph.—Card tray, bread platters, and walking canes. 254
- 7 Grant, Misses Julia and Mary.—Mimosa bean ornaments, card tray, watch cases, mats, and cross. 254
- 8 Armbrister, James A.—Walking canes. 254
- 9 Centennial Exhibition Committee, Nassau.—Mimosa bean card basket, bags, and bracelets, manufactured by Messrs. Jarrett, Nassau; tortoise back, cleaned and polished by J. R. Saunders, Nassau; palmetto fans and hats, manufactured by Mrs. John Taylor, Inagua. 254
- 10 Evans, Ellen, G. E.—Shell cross, basket, and bridal wreath. 254
- 11 Atwell, Misses.—Memorial wreath, cornucopia, brooches, and earrings, made of shells and fish scales. 254
- 12 Symonett, Mrs. Matthew.—Palm tree, and watch stand. 254
- 13 Wallace, Alexander C.—Walking canes. 254
- 14 Eldon, Mrs. James.—Case containing orange tree. 254
- 15 Garner, Mrs. Maria E.—Basket, fruit basket, bridal wreath, and sprays. 254

Fabrics of Vegetable, Animal, or Mineral Materials.

- 16 Carrol, Richard E., Long Island.—Rope made of aloe fibre. 287
- 17 Centennial Exhibition Committee, Nassau.—Palmetto rope. 287
- 18 Knowles, Joseph A., Long Island.—
 - a Rope and net made out of wild fig tree bark. 287
 - b Palmetto baskets and mat. 289

Arboriculture and Forest Products.

- 19 Knowles, Joseph A., Long Island.—Wild fig tree bark. 600

20 Sawyer, R. H. & Co.

- a Stopper wood; ship's knees of sabicu wood; bark. 600
- b Mahogany, sabicu, satin, bull, cedar, and coconut woods. 601
- c Green ebony, braziletto wood, and logwood. 602
- d Myrtleberry wax. 603

21 George, John S.

- a Specimens of bark and palmetto leaves, yellow pine and cedar woods. 600
- b Mahogany, sabicu, satin, stopper, orange, and lignum vitae woods. 601
- c Logwood, braziletto, and green ebony. 602
- d Wax made from myrtleberry. 603

22 Saunders, Samuel P.—Vegetable sponge. 604

Agricultural Products.

- 23 Boyd, Adam.—Tobacco and coffee, cultivated in New Providence. 623

Water Animals, Fish Culture and Apparatus.

- 24 Sawyer, R. H. & Co.—Conch shells. 645
- 25 Treco, P. A.—Bahama shells, collected and arranged by J. R. Saunders. 645
- 26 Saunders, Samuel P.—Small shells. 645
- 27 George, John S.—Queen conch shells. 645

Animal and Vegetable Products.

- 28 Sawyer, R. H. & Co.—Sponges. 651
- 29 George, John S.
 - a Beeswax. 654
 - b Arrowroot and cassava starch. 658
- 30 Centennial Exhibition Committee, Nassau.—Assorted preserved fruits, assorted pickles; pimento manufactured of native fruits by Daphne Fife. 656

Textile Substances of Vegetable or Animal Origin.

- 31 Sawyer, R. H., & Co.—Specimens of cotton produced principally at Long Island. 665
- 32 Saunders, S. P.—Cotton. 665
- 33 Brice, D. A.—Cotton. 665
- 34 Centennial Exhibition Committee, Nassau.—Fibres of the pita and pineapple plants, plantain, banana, and aloe trees, and espargo grass; wool made from leaves of the forest pine, pita plant, banana tree, and plantain. 666

Agricultural Engineering and Administration.

- 35 Saunders, Samuel P.—Cave earth (fertilizer). 681

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

BERMUDAS.

(North of Main Aisle, H 16.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art, Agriculture.

Furniture and Objects of General Use
in Construction and in Dwellings.

- 1 Bermuda, Government of.—Inlaid tables. 217

Clothing, Jewelry, and Ornaments,
Traveling Equipments.

- 2 Trimmingham, J.
a Bermuda straw plait, bonnets, etc., palmetto plait, and articles made from the palmetto leaf. 251
b Wreath of shell work. 254
3 Middleton, T. D.—Articles in point lace, from Somerset Island. 252
4 Smith, Mrs. R. T.—Fine point lace. 252
5 Ness, Miss.—Point lace sleeveless basque. 252
6 Ness, Miss C.—Point lace sofa pillow. 252
7 Lines, Mrs.—Point lace. 252
9 Bermuda, Government of.—Walking caps. 254

Medicine, Surgery, Prothesis.

- 10 Hugh, J. B.—Medicinal herbs and drugs. 272

Educational Systems, Methods, and
Libraries.

- 11 Education, Board of.—School-map of the Bermudas. 300
12 Thorpe, Mrs. W.—"Afternoon in Bermuda." 306
13 Wilkinson, Major H. J.—"The Sand Hills." 306
14 Anon.—Bermuda flowers from nature. 306

Engineering, Architecture, Maps, etc.

- 15 Bermuda, Government of.—Large general map of the Bermudas, details by Royal Engineers and Major Crawford, R.A.; diagram showing the monthly mean temperature of Bermuda compared with other places of winter resort, drawn by Lieut. Colonel Bland, R.E.; fac-simile of the earliest published map of Bermuda, from Norwood's survey of 1616. 335

Physical, Social, and Moral Condition
of Man.

- 18 Bermuda, Government of.—Examples of the ancient records of the colony of Bermuda, from 1616; title deeds, or original grants of land of the Bermuda Company, 1628-9.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-48.

Photography.

- 19 Somerset, Col. Fitzroy, R.E.—Photographs of Bermuda scenery, by the Royal Engineers. 430
20 Hugh, J. B.—Photographs of Bermuda scenery. 430

Aerial, Pneumatic, and Water Transportation.

- 21 Hinson, Dr.—Model of a Bermuda yacht, cutter-rigged. 594
22 Admiralty, Lords of the.—Model of her Majesty's floating dock at Bermuda; sectional drawing of same. 596

Arboriculture and Forest Products.

- 24 Several Contributors.—Sections and specimens of woods. 600
25 Astwood, Mrs.—Bird's-eye cedar, and other ornamental woods. 601

Pomology.

- 26 Committee, The.—Bananas and other fruits. 611

Marine Animals, Fish Culture and
Apparatus.

- 27 Bermuda, Government of.—Conch shells used by cameo cutters; an extinct land shell of relatively large size; Sp. of hyaline; corals, nullipores, corallines, sea fans, and sea rods. 645

Animal and Vegetable Products.

- 28 Bermuda, Government of.—Sponges. 650
29 Hugh, J. B.—Dried and preserved fruits. 656
30 Tucher, Tho. Fowle.—Arrowroot. 658
31 Bertram, J. T.—Arrowroot and Tous les Mois. 658

Textile Substances of Vegetable or
Animal Origin.

- 32 Peniston, W.—Fibre prepared from the leaves of *fourcroya gigantea*. 666

Machines, Implements, and Processes
of Manufacture.

- 33 Bermuda, Government of.—Tools used in freeing the ground of the roots of sage and wild mimosa. 672

Ornamental Trees, Shrubs, and
Flowers.

- 34 Bermuda, Government of.—Flowers ferns, and ornamental plants. 700

BRITISH GUIANA.

(North of Main Aisle, F 16.)

COLLECTIVE EXHIBIT.

Manufactures, Agricultural and Vegetable Products.

Clothing, Jewelry, and Ornaments;
Travelling Equipments.

- 1 Great Diamond Plantation.—Rice
straw ornaments. 254

Medicine, Surgery, Prothesis.

- 2 Fresson, William.—Drugs and other
medicinal productions of the colony. 272

Arboriculture and Forest Products.

- 3 Mackey, T. H.—Greenheart wood,
nearly 100 years old. 600

Agricultural Products.

- 4 Great Diamond Plantation.—Rice. 620

Animal and Vegetable Products.

- 5 Fresson, William.—Starches. 658
6 Bel Air Plantation.—Vacuum pan
sugar. 659
7 Columbia Plantation.—Common pro-
cess sugar. 659
8 Greenfield Plantation.—Vacuum pan
sugar. 659
9 La Bonne Intention Plantation.—
Vacuum pan sugar. 659

- 10 Met-en-Meersorg Plantation.—
Vacuum pan sugar. 659

- 11 Ogle Plantation.—Vacuum pan
sugar. 659

- 12 Leonora Plantation.
a Vacuum pan and other sugars. 559
b Rum. 660

- 13 Uitvlugt Plantation.—Vacuum pan
sugar. 659

- 14 Vreed-en-Hoop Plantation.—Com-
mon process sugar. 659

- 15 Versailles Plantation.—Vacuum pan
sugar. 659

- 16 Great Diamond Plantation.
a Vacuum pan sugar. 659
b Rum. 660

- 17 Hope Plantation.
a Vacuum pan sugar. 659
b Rum. 660

- 18 Tuschen de Vrienden Plantation.
a Vacuum pan sugar; molasses. 659
b Rum. 660

- 19 Lusignan Plantation.—Rum. 660

Textile Substances of Vegetable or
Animal Origin.

- 20 Godfrey, B. J.—Plantain, silk grass,
mahoe, sweet brier, and monkey apple
fibres. 660

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

CEYLON.

(North of North Avenue, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures, Education, Art, Agriculture.

Minerals, Ores, Stone, Mining Products.

- 1 Armitage Bros., Colombo.—Tin and plumbago. 100

Clothing, Jewelry and Ornaments, Traveling Equipments.

- 2 Armitage Bros., Colombo.
 a Straw hats. 251
 b Canes. 254

Fabrics of Vegetable, Animal, or Mineral Materials.

- 3 Armitage Bros., Colombo.
 a India-rubber. 285
 b Ropes. 287

Educational Systems, Methods, and Libraries.

- 4 Armitage Bros., Colombo.—Albums and other books. 306

Sculpture.

- 5 Armitage Bros., Colombo.—Elephant, carved in plumbago. 405

Photography.

- 6 Armitage Bros., Colombo.—Photographs. 430

Arboriculture and Forest Products.

- 7 Armitage Bros., Colombo.
 a Woods. 600
 b Dye woods. 602
 c Gutta-percha and gums. 603

Agricultural Products.

- 8 Armitage Bros., Colombo.
 a Coffee, spices, tobacco, and cigars. 603
 b Seeds. 604

Water Animals, Fish Culture and Apparatus.

- 9 Armitage Bros., Colombo.—Mother-of-pearl and other shells. 645

Animal and Vegetable Products.

- 10 Armitage Bros., Colombo.
 a Coco de mer. 650
 b Vegetable tallow. 652
 c Tapioca. 653
 d Sugars. 659

Textile Substances of Vegetable or Animal Origin.

- 11 Armitage Bros., Colombo.
 a Cotton. 665
 b Fibres. 666

STRAITS SETTLEMENT.

(North of North Avenue, Columns 15 to 17.)

Manufactures, Art, Agriculture.

Silk and Silk Fabrics.

- 1 Meyer, Behn, & Co., Singapore.
 a Silk floss from Rungpore. 242
 b Dyed silk from Rungpore. 243
 c Silk thread from Bengal, Gyah, and Rungpore. 244
 d Silk lace from Jubbulpore. 247

Photography.

- 2 Meyer, Behn, & Co., Singapore.—Photographic views. 430

Arboriculture and Forest Products.

- 3 Meyer, Behn, & Co., Singapore.
 a Woods from Singapore, Madras, Bombay, and Nagpore. 600
 b Dye-woods, galls, bark, etc. 602

Pomology.

- 4 Meyer Behn, & Co., Singapore.—Nuts. 621

Agricultural Products.

- 5 Meyer, Behn, & Co., Singapore.
 a Grass. 620
 b Tea, coffee, spices, etc. 623
 c Seeds. 624

Textile Substances of Vegetable or Animal Origin.

- 6 Meyer, Behn, & Co., Singapore.
 a Cotton boll, seed, and flake. 665
 b Hemp and fibres. 666
 c Wool. 667
 d Cocoon silk. 668

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

GOLD COAST.

(North of Main Aisle, B 16.)

Minerals, Manufactures, Machinery, Agriculture.

Minerals, Ores, Stone, Mining Products.

- 1 Colonial Government.
 a Granite. 102
 b White clay,—used in medicine, and to “chalk” divorced wives. 104

Chemical Manufactures.

- 2 Colonial Government.—Palm and other oils. 201
 3 Melton, W.—Palm, cocoanut, groundnut, and other oils. 201

Ceramics—Pottery, Porcelain, Glass, etc.

- 4 Colonial Government.
 a Goldsmith's furnace and crucibles. 207
 b Earthenware. 210

Furniture and Objects of General Use in Construction and in Dwellings.

- 5 Colonial Government.—Native stools; desk, and envelope case. 217

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 6 Crowther, Bishop.
 a Niger mats. 229
 b Cotton goods. 230
 7 Colonial Government.
 a Mats and baskets of grass. 229
 b Cotton fabrics; Whydah and Agney cloth. 230

Woven and Felted Goods of Wool, etc.

- 8 Colonial Government.—Woolen fabrics. 238

Silk and Silk Fabrics.

- 9 Colonial Government.—Silk fabrics. 245

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 10 Colonial School, Cape Coast.—Wool knitting. 250
 11 Crowther, Bishop.—Shippers. 251
 12 Colonial Government.
 a Sandals, hats, etc. 251
 b Jewelry. 253
 c Fans, pipes, walking-sticks, etc. 254
 d Leather satchel and leather work. 255

Paper, Blank Books, Stationery.

- 13 Colonial Government.—Book for keeping gold accounts. 261

Weapons, etc.

- 14 Crowther, Bishop.—Dagger. 268
 15 Colonial Government.—Swords, daggers, bows and arrows. 268

Fabrics of Vegetable, Animal, or Mineral Materials.

- 16 Colonial Government.
 a Ropes. 287
 b Basket ware. 285

Scientific and Philosophical Instruments and Methods.

- 17 Colonial Government.—Drums, guitars, flute, horn, etc.; strings for musical instruments. 227

Sculpture.

- 18 Colonial Government.—Carved wooden figures, ladles, etc.; carved image exhibited at native funerals. 405

Machines and Implements of Spinning, Weaving, Paper Making, etc.

- 19 Colonial Government.—Looms for manufacturing cotton yarns. 321

Arboriculture and Forest Products.

- 20 Colonial Government.
 a Odom wood. 600
 b Ornamental woods. 601
 c Gums, resin, etc. 603

Pomology.

- 21 Colonial Government.—Nuts. 611

Agricultural Products.

- 22 Colonial Government.
 a Beans. 621
 b Pepper. 623
 c Seeds, gourds, etc. 624
 23 Davison, Mrs.—Coffee (produced in eight months, from the seed). 623

Animal and Vegetable Products.

- 24 Colonial Government.
 a Skins. 652
 b Beeswax. 654
 c Starch. 658
 25 Nugent, Mr., Cape Coast.—Arrow-root. 658
 26 Melton, W.—Colored starch. 658

Textile Substances of Vegetable or Animal Origin.

- 27 Colonial Government.—Fibres of bamboo, pineapple, etc. 666

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

MAURITIUS.

(North of North Avenue, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Agriculture.

Chemical Manufactures.			Arboriculture and Forest Products.		
1	Lemière, A.—Salt.	200	7	Horne, J.—Mauritius Botanical Gardens; native woods.	600
Clothing, Jewelry, and Ornaments; Traveling Equipments.			Agricultural Products.		
2	Foucaud, Mme. Vve.—Slippers, cigar case, baskets, etc., made of Palmiste leaves.	254	8	Flore Mauricienne.—Vanilla.	623
Medicine, Surgery, Prothesis.			9	Bouton, H. & E.—Mauritius coffee.	623
3	Boulton, L.—Medicinal plants.	272	Animal and Vegetable Products.		
Educational Systems, Methods, and Libraries.			10	Mauritius, Flore Mauricienne.—Preserved fruit.	656
4	Boulton, L.—Transactions of the Royal Society of Arts and Sciences of Mauritius, from 1870 to 1875.	305	11	Marie, François.—Arrowroot.	658
	Book on medicinal plants of Mauritius.	306	12	Wiehe, J.—Sugars.	659
5	Kyshe, J.—Mauritius Almanac, 1874.	306	Textile Substances of Vegetable or Animal Origin.		
Photography.			13	Brugada, L. de, & Boucherville, E. de.—Ramie.	666
6	Moco, S.—Photographs.	430	14	Horne, J., Mauritius Botanical Garden.—Fibres, etc.	666
For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.					

QUEENSLAND.

(North of North Avenue, Columns 10 to 15.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art, Agriculture.

Chemical Manufactures.

- 1 Berkley & Taylor, Brisbane.—Dugong oil. 301
 2 Ching, John.—Dugong oil. 301
 3 Daintree, Richard.—Essences from Queensland vegetables. 303

Ceramics—Pottery, Porcelain, Glass, etc.

- 4 Mount Marley Co.—Fire brick. 307

Silk and Silk Fabrics.

- 5 Chubb, C. F., Ipswich. 342
 a Reeled silk. 342
 b Manufactured silk. 345

Medicine, Surgery, Prothesis.

- 6 Clarke, David.—Eucalyptus medicinal preparations. 372

Hardware, Edge-tools, Cutlery, and Metallic Products.

- 7 Hipwood & Sutton.—Bells made of Queensland metal. 283

Carriages, Vehicles, and Accessories.

- 8 Queensland. Government of.—Saddlery made by prison labor. 296

Educational Systems, Methods, and Libraries.

- 9 Bailey, F. M.—"Ferns of Queensland." 306
 10 Clarke, David.—Catalogue of plants and seeds. 306
 11 Groom, W. H.—"Account of Toowoomba and Vicinity." 306
 12 Hartmann, C. H.—"Fruits, Flowers, and Timbers of Queensland." 306
 13 Hockings, A. T.—Catalogue of seeds and plants. 306
 14 Hockings, A. J., Brisbane.—"Queensland Garden Manual;" "Horticulture in Queensland." 306
 15 Diggle, Silvester.—"Ornithology of Australia." 306
 16 Government Printing Establishment.—Bound books, pamphlets, and printed matter. 306
 17 Lukin & Gresley, Brisbane.—Copies of the "Queenslander." 306

- 18 Mackay, Angus.—Works entitled "The Sugar-cane in Australia," "Semi-tropical Agriculturist and Colonist's Guide." 306

- 19 Proprietors of volumes of Queensland journals.—Journals with summary, prepared for the Centennial Exhibition. 306

- 20 Robertson.—Maryborough almanac. 306

- 21 Sloter, Geo., & Co.—Sloter's almanac. 306

- 22 Thorne & Greenwell, Brisbane.—Queensland almanac and directory. 306

- 23 Willmetts, Townsville.—Almanacs of Northern Queensland. 306

Engineering, Architecture, Maps, etc.

- 24 Brisbane Tin Company.—Model showing strata of tin country. 335

- 25 Government Lithographic Establishment.—Maps, plans, charts, etc. 335

Photography.

- 26 Commissioners for Queensland.—Views of Ipswich, Rockhampton, Marlborough, Townsville, and Warwick. 430

- 27 Daintree, Richard.—Colored photographs. 430

- 28 Mackay, Angus.—Colonial views. 430

- 29 Wright, J. P.—Photographic views of Brisbane. 430

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 30 Repetti, Joseph.—Model of quartz-crushing machine. 505

Arboriculture and Forest Products.

- 32 Daintree, Richard.
 a Collection of polished timbers. 505
 b Gums from Queensland vegetables. 503

- 33 Hill, Walter, Botanical Curator, Brisbane.
 a Collection of timbers in the rough. 505
 b Queensland nuts. 505
 c Bark for tanning. 505

- 34 Mackay, Angus.—Common timbers. 500

- 35 O'Shauey, P. A., Rockhampton.—Timbers of northern Queensland. 500

- 36 Pettigrew, William.—Pick and axe handles of Queensland woods. 505

Agricultural, Animal, and Vegetable Products.

- 37 Carey, J. W.—Work-box of various finished woods. 601

Agricultural Products.

- 40 Downs, George, Gowrie.—Barley. 620
 41 Enderitch, H., Toowoomba.—Wheat. 620
 42 Free, A., Warwick.—Wheat. 620
 43 Free, George, Warwick.—Wheat. 620
 44 Mackay, Angus.—Queensland maize. 620
 45 Walker, R. F., Toowoomba.—Wheat, barley, and oats. 620
 46 Grimes, S. & G., Brisbane.—Arrowroot. 622
 47 Marks.—Arrowroot. 622
 48 Tahey, F., Nerang.—Arrowroot. 622
 49 Alexander, W. R., Redbank.
 a Coffee and tea. 623
 b Castor oil seeds. 624
 50 Boreham, J. H.—Chutney and spices. 623
 51 Chubb, F. E., Ipswich.—Coffee beans. 623
 52 Hill, Walter, Botanical Gardens.—Leaf tobacco. 623
 53 Hocker, J. H., Brisbane.—Cigars, cigarettes, leaf and manufactured tobacco. 623
 54 McFarlane.—Chili peppers. 623
 55 Mahony, Albert River.—Leaf tobacco. 623

Land Animals.

- 56 Richland, G., Cardwell.—Butterflies of northern Queensland. 638

Water Animals, Fish Culture and Apparatus.

- 57 Ching, John, Wide Bay.—Dugong calf, preserved in spirits. 640

Animal and Vegetable Products.

- 58 Stephens, T. B., Ekibin Tannery.—Leather and skins. 652
 59 Ching, John, Wide Bay.—Dugong skull, tusks, etc. 652
 60 Hayes, W. H., Candied pineapple, rockmelon, citron, ginger, lemon and orange peel. 656
 61 Neden Bros., Toowoomba.—Flour. 657
 62 Kentes, F., Allora Mills.—Wheat, flour, and meal. 657
 63 Black, Messrs., Moyea.—Sugar. 659
 64 Brown, A. H., Antigua, Mary District.—Sugar. 659
 65 Couldrey, W. H., Ageston.
 a Sugar. 659
 b Rum. 660
 66 Davey & Gooding, Beenleigh.—Sugar. 656
 67 Davidson, J. E., Mackay.
 a Sugar. 659
 b Rum. 660

- 68 Fryar and Strachan, Loganholme.
 a Sugar. 659
 69 Gibbon & Sons, Clydesdale.—Sugar. 659
 70 Superintendent of Penal Plantations.—Sugar. 659
 71 Grimes, S. & G., Oxley.—Sugar. 659
 72 Johnston, James, Helensfield, Doughboy.—Sugar. 659
 73 Mackenzie, Gairloch.—Sugar. 659
 74 Muir, Robert, Nerang.—Sugar. 659
 75 Tooth & Cran, Zengarré.—Sugar. 656
 76 Neame & Co., Herbert river.—Sugar. 659
 79 Irwin Bros., Warrilla, Ipswich.—Wine. 660
 80 Kirchner, Asmanhausen.—Wine. 660
 81 Mauch, David, Warwick.—Wine. 660
 82 Raff, George, Morayfield.—Rum. 660
 83 Ramsey Bros., Lindah.—White spirits of wine. 660
 84 Brockleemann, Brisbane.—Arrowroot biscuit. 661
 85 Daintree, Richard.—Vegetable oils. 662

Textile Substances of Vegetable or Animal Origin.

- 86 Mackay, Angus.—Queensland cotton. 665
 87 Hill, Walter.—Collection of fibres. 666
 88 McPherson, Alexander, Fortitude Valley.—Collection of Queensland fibres. 666
 89 Clarke, George E., Talgai.—Fleece wool. 667
 90 Davenport, G. H.—Merino wool. 667
 91 Fenwick & Scott.—Australian wool. 667
 92 Fisher, C. B., Headington Hill.—Merino wool. 667
 93 Gore & Co., Yandilla.—Ewe fleece wool. 667
 94 Green, C. H., Goomburra.—Fleece wool. 667
 95 Gunn, Donald, Pikedale.—Wool. 667
 96 Marshall & Slade, Glengallen.—Fleece wool. 667
 97 North British Australian Co.—Fleece wool. 667
 98 Parr, B. E., Chiverton.—Australian merino fleece wool. 667
 99 Parr, B. C.—Fleece wool. 667
 100 Shanahan & Jeannings, Westbrook.—Merino wool. 667
 101 Government Penal Establishment.—Silk worm cocoons. 668
 102 Hine, Mrs., Ipswich.—Silk cocoons. 668

Ornamental Trees, Shrubs, and Flowers.

- 103 Bailey, F. M.—Flora of Australia, and Botany of Queensland. 709

ARCHIPELAGO OF SEYCHELLES.

(North of North Avenue, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Manufactures, Agricultural, Animal, Vegetable Products.

Furniture and Objects of General Use in Construction and in Dwellings.

- 1 Bouquet, Miss.—Teacups and saucers. 218

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 2 Bouquet, Miss. 251
 3 Straw hats and slippers. 251
 4 Straw baskets, watch-pockets, and fans. 254
 5 Cayol, Mrs. Tony.—Bouquets of shell flowers. 254
 6 Bury, J. Amos.—Walking-canes. 254

Arboriculture and Forest Products.

- 8 Seychelles, Chief Commissioner of.—Samples of woods and planks. 600
 7 Briard, Mr., Praslin Island. 602
 9 Black bark dye and samples of dyed stuffs. 602
 10 Nuts. 605

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Agricultural Products.

- 8 Houareau, Sylvain.—Tobacco. 623
 9 Madine, Mr.—Cigars. 623
 10 Lemarchand, Mr.—Cacao, cloves, coffee, and vanilla. 623

Water Animals, Fish Culture and Apparatus.

- 10a Beyron, F.—Turtle shell. 645

Animal and Vegetable Products.

- 11 Bouquet, Miss.—Coca de mer straw. 650
 13 Cauvin's Distillery.—Whiterum. 660
 14 Nageon, Mr., La Digue Island.—Cocoanut oil. 662

Textile Substances of Vegetable or Animal Origin.

- 15 Brooks & Dupuy.—Cotton from Denis Island. 665
 16 Briard, Mr.—Cotton. 665

TASMANIA.

(South of North Avenue, Columns 13 to 15.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art, Agriculture.

Chemical Manufactures.

- 1 Kermode, W. A., Mona Vale.—Salt. 200
- 2 Strachan, R., Cambridge.—Salt. 200
- 3 Colvin, Charles, Hobart Town.—Oil from mutton birds, from islands in Bass's Straits. 201
- 4 Coverdale, John, Port Arthur.—Red ochre, earth for paints. 202
- 5 Loughton, James, Hobart Town.—Earth for paints. 202

Clothing, Jewelry, and Ornaments; Travelling Equipments.

- 6 Bidencope, J., Hobart Town.—Silk and felt hats and caps, with material of manufacture. 251
- 7 Tasmanian Commissioners.—Opposum and cat skin rugs. 256
- 8 Hull, H. M., Hobart Town.—Portraits of aborigines. 257

Weapons, etc.

- 9 Moir, J., Queenborough, Hobart Town.—Shot. 265

Educational Systems, Methods, and Libraries.

- 10 Hull, H. M., Hobart Town.—"Hull's Hints to Emigrants," parliamentary journals. 306
- 11 Nowell, E. C.—Books. 306
- 12 Tasmanian Commissioners.—Newspapers and statistics. 306
- 13 Walch & Sons, Hobart Town.—Almanac and guide. 306

Scientific and Philosophical Methods and Systems.

- 14 Royal Society of Tasmania.—Meteorological tables. 320

Engineering, Architecture, Maps, etc.

- 15 Randall, A., Hobart Town.—Chart of waterworks. 330
- 16 Dibbs, T. F., Launceston.—Chart of Launceston. 335
- 17 Cemetery Commissioners, Hobart Town.—Chart of cemetery. 335
- 18 Moore, Hon. Wm., Hobart Town.—Geological map of Tasmania. 335

- 19 Walch & Sons, Hobart Town.—Charts of Hobart Town and Launceston. 335

- 19a Hull, H. M., Hobart Town.—Map of Tasmania. 335

Physical, Social, and Moral Condition of Man.

- 20 Walch & Sons, Hobart Town.—Tasmanian postage stamps. 345

Sculpture.

- 21 Carlsen, P. O., Port Arthur.—Carved ivory and wooden egg and cruet stand; carved ivory and myrtle Danish pipe. 405

Photography.

- 22 Bailey, H. H., Hobart Town.—Photographs. 430
- 23 Hobart Town, Corporation of.—Photographs of public buildings. 430
- 24 Launceston, Corporation of.—Photographs of public buildings. 430
- 25 Tondur & Lempriere, Melbourne.—Photographs of the British and Tasmanian Charcoal Iron Company's (Limited) Works in Tasmania. 430

Machines and Implements of Spinning, Weaving, and Paper Making.

- 26 Coverdale, J., Port Arthur.—Spinning jenny of Tasmanian myrtle. 521

Arboriculture and Forest Products.

- 27 Creswell, C. F., Hobart Town.—Forest tree seeds (340 varieties). 600
- 28 Gulliver Brothers, Hobart Town.—Tree seeds. 600
- 29 Hull, Hugh M., Hobart Town.—Polished Tasmanian woods. 600
- 30 Edwards, G. W., Hobart Town.—Grass-tree gum and resin, for varnish. 603
- 31 Mitchell, Mrs., Swansea.—Gum, from Oyster Bay pine. 603
- 32 Lipscombe, F., Sandy Bay.—Blue gum seeds. 605

Agricultural Products.

- 33 Dalgety, Moore, & Co., Launceston.—Wheat and oats. 600
- 34 Dean, W., New Norfolk.—Wheat. 600

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 47-48.

Agricultural, Animal, Vegetable Products.

- 35 Gibson, W., Hobart Town.—Wheat. 620
 36 Harp, A., Launceston.—Wheat. 620
 37 Hogarth, D., Launceston.—Wheat. 620
 38 Kemp, G., Upper Bagdad.—Wheat. 620
 39 Archer, W. H. D., Longford.
 a Wheat and English barley. 620
 b Linseed. 624
 40 Creswell, C. F., Hobart Town.
 a Wheat, barley, oats, and rye. 620
 b Peas and beans. 621
 c Grass and other seeds. 624
 41 Graves, J. W., Hobart Town.—Native bread. 621
 42 Sharland, W. C., New Norfolk.—Hops. 623
 43 Shoobridge, E., New Norfolk.—Hops. 623

Land Animals.

- 44 Archer, W. H. D., Longford.
 Cream-colored opossum, platypus. 637

Water Animals. Fish Culture and Apparatus.

- 45 Salmon Commissioners of Tasmania.—Brown trout. 641
 46 Davies, R. H., Torquay.—Tasmanian shells. 645

Animal and Vegetable Products.

- 47 Coverdale, John, Port Arthur.—Seaweed, and jelly made therefrom. 650
 48 Archer, W. H. D., Longford.—Native furs and skins. 652
 49 Arnot, S., Bothwell.—Leather of kangaroo skins. 652
 50 Gardner & McKensie, Launceston.—Skins of kangaroo, tanned and dressed; native furs and skins. 652
 51 Tasmanian Commissioners.
 a Native furs and skins. 652
 b Blue gum tree oil. 662
 52 Holroyd, Kennedy, & Co., Hobart Town.—Jams and tart fruits. 656
 53 Degraives, John, Hobart Town.—Malt. 657
 54 Dossetor Brothers, Hobart Town.—Flour. 657

- 55 Gracie, William, Hobart Town.—Malt. 657

Textile Substances of Animal or Vegetable Origin.

- 56 Archer, W. H. D., Brickendon, Longford.—Merino wool. 667
 57 Brock, J.—Merino wool. 667
 58 Cameron, Hon. Donald, Burnside.—Merino wool. 667
 59 Gibson, James, Belle Vue, Cleveland.—Merino wool; portrait of stud sheep. 667
 60 Gibson, W. H., Fairfield, Snake Banks.—Merino wool. 667
 61 Gibson, W., & Son, Scone, Perth.—Merino wool; portraits of stud sheep. 667
 62 Headlam, Charles, Eggleston, Macquarie river.—Merino wool. 667
 63 Keach, G. W., Chiswick, Ross.—Merino wool. 667
 64 Lindley, G. W., Runnymede, Richmond.—Leicester wool. 667
 65 McLanachan, Hon. James, Ballochmyle.—Merino wool. 667
 66 Page, Samuel, Belle Vue, New Town.—Merino wool. 667
 67 Parramore, Thomas, Beaufront, Ross.—Merino wool. 667
 68 Ralston, John, Logan, Evandale.—Merino wool. 667
 69 Searle, C.—Leicester wool. 667
 70 Sharland, W. S., Woodbridge, New Norfolk.—Merino wool. 667
 71 Shaw, Fred., Redbanks, Swansea.—Leicester wool. 667
 72 Simmons, W. C.—Leicester wool. 667
 73 Taylor, David, St. Johnstone's, Macquarie river.—Merino wool. 667
 74 Taylor, G. Milford, Campbell Town.—Merino wool. 667
 75 Taylor, John, Winton, Campbell Town.—Merino wool. 667
 76 Wilson, George, Oatlands.—Merino wool. 667

Agricultural Engineering and Administration.

- 77 Anglo-Australian Guano Company, Hobart Town.—Guano from Bird's Island. 681

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

TRINIDAD.

(South of North Avenue, Columns 15 to 17.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures, Animal and Vegetable Products.

Minerals, Ores, Stone, Mining Products.

- 1 André, L. A. F.—Surface coals from the eastern coast. 101
- 2 Finlayson, Thomas A.—Asphalt, boiled and crude. 101

Furniture and Objects of General Use in Construction and in Dwellings.

- 3 Devenish, Syl., Surveyor General.—Gourd calabash. 224

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 4 Trinidad, Government of.—Mats, fans, strainers, etc. 254
- 5 McAdam, Miss Venus.—Baskets made of gourds. 254
- 6 Devenish, Syl., Surveyor General.—Walking-sticks. 254

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 7 Devenish, Syl., Surveyor General.—Razor strops. 281

Fabrics of Vegetable, Animal, or Mineral Materials.

- 8 Trinidad, Government of.—Baskets. 289

Arboriculture and Forest Products.

- 9 Prestoe, Hy., Government Botanist.—Collection of native woods. 600
- 10 Devenish, Syl., Surveyor General.—Samples of woods. 600
- 11 Trinidad, Government of.—Gutta-percha, liquid and solid. 603

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Pomology.

- 12 Cumming, A., & Co., Port of Spain.—Cocoanuts. 611

Agricultural Products.

- 13 Prestoe, Hy., Government Botanist.—Nutmegs, cloves, mace, etc. 623
- 14 Needham, Sir Jos., San Antonio.—Cocoa. 623
- 15 Penco, Jos., La Merced.—Cocoa. 623
- 16 Cleaver, C., Verdant Vale.—Cocoa. 623
- 17 D'Abadie, St. L., St. Pedro.—Cocoa. 623
- 18 Flamant, Mrs. C.—Snuff of native tobacco. 623

Animal and Vegetable Products.

- 19 Prestoe, Hy., Government Botanist.—Preserved fruits. 656
- 20 Trinidad, Government of.—Cassaripe. 656
- 21 Flament, Mrs. Ch.
 - a Farina and plantain flour. 657
 - b Cassada starch. 658
- 22 Jenny, Miss.—Farina. 657
- 23 Colonial Company's Agency.—Sugar. 659
- 24 Seigert, Dr., Port of Spain.—Angostura bitters. 660
- 25 Somes & Co.—Cocoanut oil. 662
- 26 Devenish, Syl., Surveyor General.—Carap oil. 662

Textile Substances of Animal or Mineral Origin.

- 27 Somes & Co., Nariva Cocal.—Cocoanut fibre. 666
- 28 Devenish, Syl., Surveyor General.—Fibre from Agave vivipara. 666
- 29 Prestoe, Hy., Government Botanist.—Fibres. 666

INDIA.

(North of Nave, Columns 22 to 25.)

COLLECTIVE EXHIBIT.

Chemicals, Ceramics, Woven Goods, Clothing.

Chemical Manufactures.

COLLECTIONS FROM THE INDIAN MUSEUM, BY J. FORBES WATSON, M.A., LL.D., DIRECTOR OF THE INDIAN MUSEUM, ETC.

- a Rock salt from Salt range; salt from Poorthemauk, Nellore, Toomlook, Balasore, Cuttack, and Jeypore; black salt from Calcutta; saltpetre from Cutch, Sarun, Bengal, Ahmednugger, Lahore, Central India, Ellore, Nellore, Cawnpore, Salem, Madras, and Calcutta; alum from Madras, Lahore, and Bengal; carbonate of soda from Lind and Calcutta; sulphate of iron from Salt range; borax from Thibet; sal ammoniac from Kurnal and Calcutta; sulphate of copper from Calcutta. 200
- b Gamboge from Bombay; indigo from South Arcot, Moorshedabad, Madras, and Shikarpore; cutch from Calcutta, Madras, and Burmah; gambier from Bombay and Malacca; lac dye from Jubbulpore and Malwa. 202

Ceramics—Pottery, Porcelain, Glass, etc.

- c Ornamental tiles from Hyderabad. 208
- d Water vessels from Patna, Ghallawar, Madras, South Canara, and Allahabad; vase from Sindh; hookah bowl and bottom from Patna; cup, dish, and cover from Hyderabad; milk pan from Madras; goblet from Vizagapatam. 210

Furniture and Objects of General Use in Construction and in Dwellings.

- e Copper and brass lamps, boxes, plates, dishes, basins, cups, etc., from Calcutta, Benares, Bengal, Bombay, Patna, Indore, Madras, Mirzapore, Travancore, Nepal, Cachar, and Poona; betel plates inlaid with silver, from Hyderabad; copper amulet case from Thibet; brass spoon for oil from Madras. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

- f Phulgat mat from Travancore. 229
- g Muslin and cotton from Dacca and Madras. 230
- h Striped and checked cotton from Madras. 231

Woven and Felted Goods of Wool, etc.

- i Cashmere and woolen carpets from Madras, Scind, and Ferahan. 239
- j Cashmere long and square shawls, net shawls, chuddahs, scarfs, burnouse, cravats, gold embroidered cloaks and table covers. 240

Silk and Silk Fabrics.

- k Raw silk from Surdah, Berhampore, Bogra, Seetapore, and Bengal; Tusseh silk thread from Bengal, Gyah, and Bhagulpore; cocoons from Bengal and Cuttack; Eria silk thread from Rungpore and Assam. 242
- l Floss silk from Umritsur, Punjab, Vellore, Tatta, and Cashmere. 243
- m Striped and plain piece silk from Beerchoom, Hyderabad, Ahmedabad, Burmah, and Benares. 246

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- n Women's garments from Madras, Pegu, and Dharwar; men's garments from Goudaspore, Moultan, and Sindh; pinna silk skirt from Madras. 250
- o Embroidered shoes and turbans from Hyderabad, Gwallior, Sindh, Kotah, and Madras. 251
- p Nets, muslin, cloth, and silk embroidered in gold and colors from Sindh, Madras, Benares, Hyderabad, Delhi, Bhurtpore, and Bombay; gold, silver, white, and colored laces from Bombay, Nagpore, and Madras; handkerchief from Poona convent; doyleys from Madras. 252
- q Collection of jewelry from Bombay. 253
- r Dolls from Benares; fans from Madras, Delhi, Tipperah, South India, Poona, and Moonghyr; choorie split ivory from Sylhet; chowrie, split sandal wood from Madras. 254
- s Leather box, embroidered with quill work, from Simla. 255

Weapons, etc.

- t Spears, bows and arrows from Lahore, Delhi, and South India; velvet quivers and arm covers from Lahore; battle axes from Delhi and Nagpore; coat of mail from Punjab; daggers, swords, breastplates, etc., from Lahore, Burmah, Decan, Coorg, and Bengal. 268

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-35.

Manufactures, Education, Art, Agriculture.

Medicine, Surgery, Prothesis.

- m* Barks, liquorice, opium, nux vomica, aconite, patchouli, tamarinds, anise, cardamom and croton seeds, cubebs, blistering beetles, juniper berries, aloes, and other medicinal products from Madras, Travancore, Bombay, Penang, Bengal, Mysore, North India, Malacca, and Calcutta. 272

Hardware, Edge Tools, Cutlery, and Metallic Products.

- r* Copper bell from Burmah. 283
w Lock and key from Indore. 284

Fabrics of Vegetable, Animal, or Mineral Materials

- x* Baskets and cigar case from Madras; cane stands from Singapore; grass window shades from Travancore; papier-maché articles from Cashmere, Kurnool, and Sindh; lacquered wood work from Burmah and Sindh; japanned cabinet from Bareilly. 289

Carriages, Vehicles, and Accessories.

- y* Model of state carriage from Poona. 292
z Models of passenger and luggage carts, and palanquin from Bombay. 293
aa Sikh saddle; velvet and gold trappings from Punjab. 296

Educational Systems, Methods, and Libraries.

- ab* Books, "The People of India" and "The Textile Manufactures of India," by J. Forbes Watson, LL.D.; "Tree and Serpent Worship," by J. Fergusson, F.R.S.; "Ancient Buildings in Kashmir" and "Ancient Buildings near Muttra and Agra," by Lieut. H. H. Cole; "Primitive Tribes of the Nilagiris," by J. W. Brecks; Report on the Archaeology of West India, by J. W. Burgess. 306
ac Stringed and wind instruments from Madras; kettle drum from Bengal; horn from Moorsheadabad. 327

Engineering, Architecture, Maps, etc.

- ad* Maps illustrative of Indian surveys; relief map of India. 335

Sculpture.

- ae* Sculptured stone bull from Nandi. 400
af Sculptures from the Amravati Toppe, viz.: base of large slab; panel figure of temple with Buddha seated; portions of frieze; figure standing; slab, Buddha's feet. 401
ag Carved model of Burman chuttree, and sandal wood model of Hindoo temple from Booj; carved vase, sandal wood fan, and glove box from Bombay; carved stone idol, "Vishnu riding on Garuda" from Madras; carved wooden idols from Nepal; carved ivory box from Burmah; carved elephant with howdah from Berhampore; carved horn tazza from Gokah; carved pith figures from Trichinopoly, and carved horn drinking cup from Rutnagherry. 405

Photography.

- ah* Photographic views of India; photographs of races and tribes of Hindoostan; photographs of Indian architecture. 430
ai Photo-lithographs illustrative of the textile fabrics of India. 432

Ceramic Decorations, Mosaics, etc.

- aj* Inlaid marble boxes from Agra and Mysore. 450
ak Inlaid wooden glove and work box from Bombay. 452
al Card basket and box of porcupine quill work from Vizagapatam; casket and basket of Koftgari ware; miniature paintings on ivory, in carved sandal wood frames from Delhi; writing pads of ornamental painted leather from Kurnool; paintings on mica from Trichinopoly; samples of ornamental writing in colors. 454

Aerial, Pneumatic, and Water Transportation.

- am* Models of passenger, ferry, coasting, and freight boats from Calcutta. 594

Arboriculture and Forest Products.

- an* Ornamental and other woods. 602
ao Dye woods, barks, roots, and galls from Madras, Sindh, Cuttack, Nagpore, Burmah, and Singapore. 602
ap Gums, resin, incense, gutta-percha, myrrh, etc., from Rangoon, Gyal, Burmah, Madras, Pegu, Salem, Travancore, Malacca, Indore, and Bombay. 603

Agricultural Products.

- aq* Wheat from Sindh, Punjab, Faridpur, and Bengal; barley from Belgaum, and other places; oats from Patna and Monghyr; maize from Northwestern India; millet; raggee; buckwheat from the Himalayas, illustrations of food plants of India. 620
ar Peas, beans, lentils, and vetch. 621
as Tea from Assam, Bishnath, Cachar, Dehra-Doon, Pankabaree, Kangra, Kumaon, and other places; tea bush from Silcoorie; coffee from Aden, Bombay, Tinnevely, Paradise estate, and Chittagong; coffee berries from South India, Mysore, and Coorg; spices, pepper, ginger, mustard, curry powder, and turmeric from Bombay, Travancore, Indore, Dehra-Doon, Bengal, Nepal, Madras, and other places. 623
at Coriander, dill, and fennel seed from Berar, Oudh, Faridpur, and Dharwar; water lily stems from Sindh; oil seeds from Faridpur, Nagpore, Ahmednuggur, Bengal, and Indore; poppy seed from Central Provinces and Bengal; groundnuts from Berar, Indore, and Khandeish. 624

Land Animals.

- au* Various kinds of silk worms of India from Cashmere, Bengal, and the Himalayas. 636

Water Animals, Fish Culture and Apparatus.

- av* Pearl oysters from Kurrachee. 645
aw Edible birds' nests from Ceylon; fish maws and sharks' fins from Bombay. 646

Animal and Vegetable Products, Textiles, Machines.

Animal and Vegetable Products.

- as Glue from Cawnpore. 65a
 ay Beeswax from Travancore, Pegu, Rangoon, Singapore, and Chota Nagpore. 654
 as Soojee flour from Madras; rice from Punjab, Sindh, and Bengal. 657
 as Arrowroot, tapioca, and sago. 658

Textile Substances of Vegetable or Animal Origin.

- as Cotton from various parts of India, in its different stages of growth and manufacture. 665
 as Flax from Punjab; rheea stems and fibre from Assam; brown hemp from Bombay; Jubbulpore hemp; pineapple fibre from Madras and Mangalore; aloë fibre from Madras; Manila hemp; mat grass from

Bengal; illustrations of fibre-producing plants of India. 666

- as Sheep's wool from Bombay, Mysore, Ladakh, and Bokhara; goat's wool from Umritsur, Punjab, Turfan, and Yarkand; camel's wool from Bokhara and Punjab. 667

Machines, Implements, and Processes of Manufacture.

- as Plow and yoke from Berar. 670
 as Native cotton gin from Bengal. 673

Agricultural Engineering and Administration.

- as Models of water and cotton cart from Bombay. 68a

CANADA.

(North of Nave, Columns 16 to 23.)

Chemicals.

Chemical Manufactures.

- 1 Cowan, A., Brockville, Ont.—Salt, nitre cake; nitric, muriatic, and sulphuric acids; sodium nitrate. 200
 12 Geological Survey of Canada, Q.
 a Salt, salt cake, salt gypsum cake, residue for crystallizing pans, salt scales. 200
 b Ochres. 20a
 14 Sharp, Jos. S., Apohaqui, N. B.—Salt. 200
 17 Cooper, Robert, Toronto, Ont.—Washing crystals. 200
 18 Lane, T. G., Hamilton, Ont.—Washing and bleaching crystals. 200
 19 Saunders, Wm., London, Ont.
 a Pharmaceutical preparations. 200
 b Perfumery. 20a
 20 Lyman, Clare, & Co., Montreal, Q.
 a Pharmaceutical preparations. One of the longest established drug firms in the Dominion. Specialty—pure drugs. Also, linseed oil crushers and paint grinders. 200
 b Oil. 201
 c Paints. 20a
 22 Lyman Bros. & Co., Toronto, Ont.
 a Pharmaceutical and chemical preparations. 200
 b Oil for paints. 201
 c Paints in oil. 202
 23 Wilson, John, St. John, N. B.—Soaps. 201
 24 Savage, Alfred, & Son, Montreal, Q.—Oil. 201
 25 Morse, Geo. D., & Co., Toronto, Ont.—Soap, candles, tallow, lard, and oils. 201

- 26 Walker, J., Hamilton, Ont.—Soaps. 201
 28 Hood, A. W., & Son, Montreal, Q.—Soaps. 201
 29 Albert Toilet Soap Co., Montreal, Q.—Soaps. 201
 30 Spinelli, R., Montreal, Q.—Paraffine soaps. 201
 31 Lyman, B. J., Montreal, Q.
 a Phosphorus soap. 201
 b Perfumery. 203
 33 Waterman Bros., London, Ont.—Hard and soft coke from petroleum, crude and refined petroleum, paraffine oil, benzine, axle oil, tar from petroleum, paraffine scales. 201
 36 Leeds Paint Manufacturing Co., Mallorytown, Ont.—Ferruginous rock and paints. 20a
 39 Buchanan Mineral Co., Walsingham, Ont.—Paints and colors. 20a
 40 McKay, William, Ottawa, Ont.—Liquid drier for paint, printers' ink. 20a
 42 Ramsay, T., Montreal, Q.—Paints. 20a
 44 Ramsay, A., & Son, Montreal, Q.—Paints. 20a
 45 Montreal Plumbago Mining Co., Montreal, Q.—Stove polish, crucibles. 20a
 46 Martin, Charles, Montreal, Q.—Stove polish, crucibles. 20a
 48 Hall, G. B., Quebec, Q.—Ochres. 20a
 53 Copeland & McLaren, Montreal, Q.—Iron oxide. 20a

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 37-45.

Ceramics, Furniture, Woven Goods.

- 65 Thompson, G. F., & Sons, St. John, N. B.—White lead. 202
- 57 Edgett, W., Pudsey's Point, N. S.—Iron ochre. 202
- 58 Miller, Hugh, & Co., Toronto, Ont.—Pomade. 203
- 62 Manuville, J. J., Hampton, N. B.—Matches. 204
- Ceramics—Pottery, Porcelain, Glass, etc.**
- 81 Pratt, Charles, London, Ont.—Pottery. 206
- 82 Ahren, J. H., Paris, Ont.—Pottery. 206
- 83 Bell, David, Little River, Q.—Drain tiles. 206
- 84 Mochan, Albert, St. John, Q.—Bricks. 206
- 86 Geological Survey, Montreal, Q.—Bricks. 206
- 87 Advisory Board, Quebec, Q.—Bricks. 206
- 91 Bell, W. & D., Quebec, Q.—Tobacco pipes. 206
- 93 Lee Brothers, St. John, N. B.—Bricks, drain tiles. 206
- 94 Smith & Kaye, Halifax, N. S.—Bricks, drain tiles. 206
 δ Earthenware. 210
- 98 St. John Stone Chinaware Co., St. John, Q.—Stone chinaware. 210
- 99 Cape Rouge Pottery Co., Quebec, Q.—Crockery ware. 210
- 103 Booth, W., Toronto, Ont.—Sign painting on glass. 216
- 104 McAusland, J., Toronto, Ont.—Stained glass, figured work. 216
- Furniture and Objects of General Use in Construction and in Dwellings.**
- 105 Hay, R., & Co., Toronto, Ont.—Sideboard. 217
- 107 Riley & May, Toronto, Ont.—Billiard tables, etc. 217
- 110 Kremer, C., Preston, Ont.—Furniture. 217
- 111 Murphy, A. A., Montreal, Q.—Store stools. 217
- 112 Roy & Co., Montreal, Q.—Invalid mechanical chair. 217
- 113 Reinhardt, C., Montreal, Q.—Combination spring-bottom bedstead. 217
- 114 Reid, R., Montreal, Q.—Marble mantelpiece. 217
- 115 Stephen, A., & Son, Halifax, N. S.—Secretary. 217
- 117 Drum Cabinet Manufacturing Co., Quebec, Q.—Parlor and bedroom sets, sideboard. 217
- 118 Whiteside, H., & Co., Montreal, Q.—Beds and mattresses. 217
- 121 Chapeau, Godfroi, Montreal, Q.—Fireproof safes, burglar-proof door. 217
- 122 Bennett, Jas., St. John, N. B.—Newspaper files. 217
- 123 Hutching & Co., St. John, N. B.—Mattresses. 217
- 127 Huber, Allen, Berlin, Ont.—Mirrors. 219
- 129 Ewing & Co., Toronto, Ont.
 a Mirrors. 219
 δ Mouldings. 220
- 130 Dixon, A. H., Toronto, Ont.—Show cards. 219
- 131 Shantz, J. Y., Berlin, Ont.—Mirror. 219
- 132 Spence, John C., Montreal, Q.—Stained glass window. 219
- 135 Wade, J. M., Montreal, Q.—Ornament on glass and wood. 219
- 136 Cockburn, D., Ottawa, Ont.—Carved frame. 220
- 140 Brown, J. T., St. John, N. B.—Frames, book-rack. 220
- 141 Copp Bros., Hamilton, Ont.
 a Stoves. 222
 δ Sad irons. 223
- 142 Moore, D., & Co., Hamilton, Ont.—Stoves, tubular lanterns. 222
- 143 Elliot, J. W., Toronto, Ont.—Stoves. 222
- 144 White, H. A., Hamilton, Ont.—Stovepipe damper. 222
- 146 Wexelburg & Co., Toronto, Ont.—Sheet metal elbows. 222
- 150 Harris, J., & Co., St. John, N. B.
 a Ship cambouse and register grates. 222
 δ Iron mantels. 227
- 151 Trudeau, P., Ottawa, Ont.—Gas burner, globe, and gallery. 223
- 154 Williams, J. M., & Co., Hamilton, Ont.—Tin and stamped ware. Manufacturers of plain, stamped, re-tinned and japanned tinware, tubular lanterns, etc. etc. Price lists sent on application. 224
- 158 Penton, Thos., Sarnia, Ont.—Combined cooking and heating engine. 225
- 161 Elliott, T. C., Guelph, Ont.—Washing machine. 225
- 163 Lawlor & Co., Montreal, Q.—Washing machines. 225
- 164 Hall, G. B., Quebec, Q.
 a Washing machines. 225
 δ Blinds, etc. 227
- 166 Cable, Bayard, & Co., Montreal, Q.—Clothes rack. 225
- 168 Foster, S. R., & Son, St. John, N. B.—Fireproof shutters. 227
- 171 Wood, T. M., & Co., Toronto, Ont.—Venetian blind. 227
- 174 Evans, Oscar C., Hamilton, Ont.—Blinds. 227
- 176 Fontaine, J., Montreal, Q.—House windows. 227
- 177 Wells & Co., Toronto, Ont.—Window fastener. 227
- 178 Fairbank, Hawes, & Co., St. John, N. B.—Doors, blinds, sash, turned work. 227
- 179 Wilson, Gilmour, & Co., St. John, N. B.—Marbleized mantels and grates. 227
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- 180 Dundas Cotton Mills Co., Hamilton, Ont.—Cotton fabrics. 230
- 181 Canada Cotton Manufacturing Co., Cornwall, Ont.—Domestics, tickings, bags, yarn, etc. 234

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- 182 Smith & Wilby, Toronto, Ont.—
Samples of cotton batts. 230
- 183 Woodworth, J. L., St. John, N. B.—
Cotton yarns. 230
- 184 Parks, W., & Son, St. John, N. B.—
White and colored cotton yarns. 230
- 185 Winger, H., Elmira, Ont.
a Canadian and Oxford gray cloth. 230
b Linen sheeting. 233
- 186 Stevens, A. J., & Co., Paris, Ont.—
Floor oil cloth. 234

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- 191 Toronto Tweed Co., Toronto, Ont.
a Tweeds. 235
b Flannels. 236
- 192 Rosamond Woolen Co., Almonte,
Ont.—Cassimeres. 235
- 195 Mills & Hutchison, Montreal, Q.—
Tweeds. 235
- 196 Paton Manufacturing Co., Sher-
brooke, Q.—Cloths and tweeds. 235
- 197 Woodworth, J. L., St. John, N. B.—
Woolen yarns. These 4-ply woolen yarns,
chiefly for knitting purposes, are made of
pure native wool, with special regard to
durability. 235
- 198 Oxford Woolen Mills, Oxford, N.
S.—Woolen goods. 235
- 199 Fisher, T. S., Toronto, Ont.
a Tweeds, buckskins, doeskins. 235
b Yarns. 238
- 200 Advisory Board, Victoria, Br. Col.
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goat. 235
b Indian blankets from wool of Rocky mountain
goat. 237
- 201 Lomas, Adam, & Son, Sherbrook,
Q.—Flannels. 236
- 202 Willett, S. T., Chambly, Q.—Flan-
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- 203 St. John Woolen Mills, St. John, Q.—
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- 203a Smith & Wilby, Toronto, Ont.—
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- 204 Cantlie, Ewan, & Co., Montreal, Q.—
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- 205 Winger, H., Elmira, Ont.
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- 207 Wardlaw, J., Galt, Ont.—Woolen
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Traveling Equipments.

- 210 Taylor, R. F., & Son, Toronto, Ont.—
Full dress suit, dress overcoat. 250
- 212 McCrae & Co., Guelph, Ont.—Knit
goods and hosiery. 250
- 213 Ancaster Knitting Co., Hamilton,
Ont.—Knitted and fancy goods. 250
- 214 Blacklock, W., & Co., Hastings,
Ont.—Wool shirts and drawers. 250
- 215 Smith, H. H., Goderich, Ont.—
Suits of Canadian goods. 250
- 216 Shorey & Co., Montreal, Q.—Ready
made clothing. 250
- 217 Fisher, T. S., Toronto, Ont.—
Shirts, pants, cloaks, and scarfs. 250
- 218 Skelton, Tooke, & Co., Montreal,
Q.—Shirts, collars, and cuffs. 250

- 219 Brown & Clagget, Montreal, Q.—
Dresses. 250
- 220 Willis, E., & Co., St. John, N. B.—
Paper collars and cuffs. 250
- 222 May, James S., St. John, N. B.—
Ready-made clothing. 250
- 225 McKensie, Charlottetown, P. E.
I.—Clothing. 250
- 228 Sussex Boot & Shoe Co., Sussex
N. B.—Boots and shoes. 251
- 229 Sutherland, A., Kingston, Ont.—
Boots and shoes. 251
- 231 King & Brown, Toronto, Ont.—
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- 233 Moore, Th., Cooksville, Ont.—
Wood models of boots and shoes. 251
- 235 Corestine, J., & Co., Montreal, Q.—
Hats and caps. 251
- 237 Gentesse, C., Montreal, Q.—Im-
proved head conformateur. 251
- 238 Slater & Perry, Montreal, Q.—
Boots and shoes. 251
- 239 Cloutier, George, Pointe Levis, Q.—
Shooting boots. 251
- 242 Ramsay, D., Cobourg, Ont.—Boots
and shoes. 251
- 244 Dominion Suspender Co., St. Ste-
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- 260 Saunders, S., Guelph, Ont.—Carved
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- 261 Shantz, J. Y., Berlin, Ont.—Vege-
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- 263 Laviole, M., Montreal, Q.—Hair
work. 254
- 264 Leblanc, J. H., Montreal, Q.—
Fancy leathers. 254
- 265 Clarke, U. E., & Co., Toronto, Ont.—
Trunks, valises, and bags. 255
- 266 Taylor, Robert, Halifax, N. S.—
Trunks. 255
- 267 Borbridge, S. & H., Ottawa, Ont.—
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- 268 Chisholm, W., New Glasgow, N.
S.—Ladies' trunks. 255
- 269 Renfrew, G. R., & Co., Quebec, Q.—
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- 270 Reynolds & Volkel, Montreal, Q.—
Complete set of furs. 256
- 271 Hudson Bay Co., Montreal, Q.—
Furs. 256
- 272 Keizer, C., & Son, Halifax, N. S.—
Furs. 256
- 273 Thibault, Lanthier & Co., Mon-
treal, Q.—Furs. 256

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- 278 Kilgoren Bros., Toronto, Ont.—
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- 283 Wilson, J. C., & Co., Montreal, Q.—
Paper bags. 260
- 284 Canada Paper Co., Montreal, Q.—
Wrapping and printing paper and enve-
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- 288 Warwick, Wm., Toronto, Ont.—
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- 289 Hunter, Rose & Co., Toronto, Ont.—
Books printed and bound. 261
- 290 Brown Bros., Toronto, Ont.—Ac-
count and pocket book binding. 261
- 291 Perrault, L., & Co., Montreal, Q.—
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- 293 Dawson Bros., Montreal, Q.—Blank books, binding. 261
 295 MacKinlay, A. & W., Halifax, N. S.—Blank books. 261
 297 Stanton, M., & Co., Toronto, Ont.—Room paper hangings. 264

Weapons, etc.

- 300 Meyer, F. W. Albert, Montreal, Q.—Small gun, light artillery. 266
 301 Rawbone, J. L., Toronto, Ont.—Implements for breech and muzzle guns. 269
 302 Stephens, R. E., Owen Sound, Ont.—Breechloading rifle. This rifle is remarkable for having only the minimum of motions, cock, load, and fire; the maximum of rapid fire is consequently attained. It has the side-hinge block breech. 269
 303 Kilby, R. H., Montreal, Q.—Evans repeating rifle. 269
 305 Egan, John, Halifax, N. S.—Case of guns and rifles. 269

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- 307 Miller, Hugh, & Co., Toronto, Ont.—Tick destroyer for sheep. 272
 310 Stewart, George, jr., St. John, N. B.—Ship's medicine chest. 272
 311 Marter, F. B., Halifax, N. S.—Ship's medicine chest. 272
 314 Canada Truss Factory, Montreal, Q.—Surgical apparatus, artificial limbs. 276
 315 Pourtier, M., Quebec, Q.—Philedonte fountain. 277

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- 316 Moore, Th., Cooksville, Ont.—Axe and tool handles. 280
 318 Smith, R. H., & Co., St. Catherine, Ont.—Saws. 280
 320 Dates Patent Steel Co., Toronto, Ont.—Edge tools. 280
 322 Ahern & Walsh, Ottawa, Ont.—Lumbermen's tools. 280
 323 Robertson, Peter, Ottawa, Ont.—Lumbermen's and stonecutters' tools. 280
 324 Warnock, Jos., & Co., Galt, Ont.—Edge tools for wood, iron, and stone. 280
 325 Booth, G., Toronto, Ont.—Engine and pipe wrench. 280
 327 Chapleau, Godfroi, Montreal, Q.—Limestone cutters' tools. 280
 328 Gilmour, G., Cote St. Paul, Q.—Augers and bits. 280
 329 Boivin & Co., New Liverpool, Q.—Axes and edge tools. 280
 332 Spiller Bros., St. John, N. B.—Edge tools and cutlery. 280
 335 Broad, E., St. John, N. B.—Axes, edge tools, hammers. 280
 339 Morley, Victoria, Br. Col.—Carpenters' mallets, yew and arbutus. 280
 340 Cable, Bayard, & Co., Montreal, Q.—Adjustable elastic razor strop. 281
 341 Whelpley, J. Albert, Greenwich, N. B.—Skates. 281

- 342 Starr Manufacturing Co., Halifax, N. S.—Skates. Acme, Club, Forbes' patent, sold largely in Russia, Sweden, Norway, Denmark, France, England, and United States. Being self-fastening, it possesses great merit for convenience. Quality superior. 281
 343 Fenerty, E. L., & Co., Halifax, N. S.—Skates. 281
 344 Copp Brothers, Hamilton, Ont.—Enameled ware. 283
 347 Laidlaw, A., & Co., Hamilton, Ont.—a Enameled hollow ware. 283
 b Enameled plumbers' ware. 284
 349 Dixon, Smith, & Co., Toronto, Ont.—Sash fastener. 284
 352 Campbell, Geo., Toronto, Ont.—Fireproof shutters. 284
 353 Gibbs, Geo., & Co., Port Hope, Ont.—Nuts and bolts. 284
 354 Law, John, London, Ont.—Brass work. Our mica slit lubricator will bear high pressure, is transparent, will not break. Our water-gauge glass guard and new mode of packing is very durable. Law's patent tar and petroleum burner demonstrates gas tar and petroleum tar as a good and handy fuel. A quarter-inch stream of tar will give fifty horse-power sure. 284
 355 Griffith & Co., Toronto, Ont.—Locks and latches. 284
 356 Brisley, W., Toronto, Ont.—Clip hook. 284
 358 Stringer, Jos., Kingston, Ont.—Locks. 284
 359 Cavern & Button, Gananoque, Ont.—Hinges and nails. 284
 360 Ritchie, John, & Son, Toronto, Ont.—Brass work. 284
 363 Pillow, Hersey, & Co., Montreal, Q.—Tacks, nails, spikes, horseshoes. American export agents and foreign visitors interested in this class of goods will do well to examine them. We endeavor to please all in executing orders intrusted to us. They can be sold at prices that must induce buyers. 284
 365 Ives, H. R., Montreal, Q.—General hardware. 284
 370 Belanger, Vinet, & Dupart, Montreal, Q.—Aixes. 284
 373 Foster, S. R., & Son, St. John, N. B.—Tacks, nails. 284
 374 McKenzie, M., Prince Edward's Island.—Burglar-proof locks. 284
 376 Starr Manufacturing Co., Halifax, N. S.—Nails, spikes, bolts, cans, dies. 284

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- 379 Gurd, J. R., London, Ont.—Corn broom and whisks. 286
 381 Simms, T. S., & Co., St. John, N. B.—Brushes. 286
 382 Whitehead & Turner, Quebec, Q.—a Brushes, brooms, dusters. 286
 b Fancy woodenware. 289
 383 Nelson, H. A., & Sons, Montreal, Q.—Brooms. 286

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- 385 Copland, McLaren, & Co., Montreal, Q.—Wire brushes for cleaning castings. 286
- 387 Copeland, Geo., Hamilton, Ont.—Cordage and twine. 287
- 390 Conner, Thos., & Sons, St. John, N. B.—Cords, ties, lines. 287
- 391 The Dartmouth Ropework Co., Halifax, Nova Scotia—Manila cordage and bolt rope, and tarred manila lanyards, four-strand tarred Russian hemp cordage and ratline. No. 1 navy, navy, and patent new stock oakum in 50-pound bundles, and the same qualities spun, ready for calkers to drive. The patent new stock oakum is made entirely from hemp and tow, tarred upon their own machinery, patented December 30, 1873. It can be carded or spun directly from tarring machine, the finished oakum being completed within the hour. 287
- 392 Bridge, Andrew, West Brook, Ont.—Pails and tubs. 289
- 393 Clerke & Co., St. John, N. B.—Lasts for boots and shoes. 289
- 394 Hall, G. B., Quebec, Q.—Tubs, pails. 289
- 396 Peacock, W., Montreal, Q.—Crick-et bats. 289
- 399 Wendberg & Co., Toronto, Ont.—Galvanized ironwork. 291
- Carriages, Vehicles, and Accessories.**
- 419 Guerin, C., Ottawa, Ont.—Child's carriage. 293
- 426 Webb, John R., Quebec, Q.—Sliding sleigh. 295
- 431 Lugaden & Barnett, Toronto, Ont.—Ladies' hunting saddles. 296
- 432 Skellington, S., Bros., Windsor, Ont.—Whip lashes. 296
- 433 Borbridge, S. & H., Ottawa, Ont.—Harness. 296
- 434 Vahey, W., Forrest, Ont.—Collars and machine. 296
- 438 Percy, John, Bowmanville, Ont.—Horseshoes. 296
- 439 Weichel, M., Elmira, Ont.—Horse-shoes. 296
- 440 Bell, C. R., Parkhill, Ontario.—Horseshoes. 296
- 441 Malcolm, R., Toronto, Ont.—Saddlery, harness, bags. 296
- 442 Cable, Bayard, & Co., Montreal, Q.—Halter clasps. 296
- 446 Culbert, W. H., Sussex, N. B.—Harness, collars. 296
- 449 Campbell & Fowler, St. John, N. B.—Springs and axles. 296
- 450 Clarke, R., & Co., St. John, N. B.—Lasts. 533
- 451 Bradshaw, T. H., St. Martin's, N. B.—Ship models. 594
- 452 Bradshaw, J. D., St. Martin's, N. B.—Ship models. 594
- 453 Date, John, Montreal, Q.—Diving apparatus. 594
- 454 Skinner, G. M., Gananoque, Ont.—Fishing tackle. 647
- 455 Scribner, D., St. John, N. B.—Salmon and trout rods. 647

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

FRANCE.

(North of Nave, Columns 39 to 53.)

Chemical Manufactures.

Chemical Manufactures.

- 1 Grillon, E., Paris.—Indian dates. 200
- 2 Coignet, Father & Son, & Co., Paris.—Chemical and pasture products. 200
- 3 Galzy, E., Lyons.—Insect products. 200
- 4 Fournier, Jean, Roanne, Loire.—Cream of tartar. 200
- 5 Hygienic Products Manufacturing Co., Paris.—Chemical preparations. 200
- 6 Limousin, Paris.—Pharmaceutical preparations; medicated capsules. 200
- 7 Limousin & Co., Paris.—Medicated capsules. 200
- 8 Michel, Pyrrhus, Vaison, Vaucluse.—Digestive elixir and vermifuge. 200
- 9 Rigollot & Co., Paris.—Mustard poultice and instantaneous plaster. 200
- 10 Rouault, Ch., Paris.—Syrup of iron and tar. 200
- 11 Audibran, Paris.—Anti-scorbutic elixir. 200
- 12 Baudon, Paris.—Wine of antimony. 200
- 13 Boude & Son, Marseilles.—Refined sulphur. 200
- 14 Beslier, A., Paris.—Pharmaceutical preparations. 200
- 15 Brasseur, Romorantin, Loir & Cher.—Pectoral tonic syrup. 200
- 16 Bravais, Rooul, & Co., Paris.—Pharmaceutical preparations. 200
- 17 Chevrier, Paris.—Pharmaceutical preparations. 200
- 18 Cléry, Hughes, Paris.—Pharmaceutical preparations. 200
- 19 Vicat, Joseph Henri, Paris.
 - a Insect powder, and instruments for its use. 200
 - b Liquid blacking. 202
- 20 Tancrede Bros., Paris.—Glue and gelatin, animal charcoal, bone tallow. 200
- 21 Daubin & Co., Paris.—Fly-paper and mosquito powder. 200
- 22 Druelle, Reims, Marne.—Champagne wines. 200
- 23 Dubois, Charles, Marseilles.—Special chemical preparations for the navy. 200
- 24 Garnier, P., Noyon, Oise.—Pharmaceutical preparations. 200
- 25 Ducro & Co., Paris.—Meat extract. 200
- 26 Jacquand, Father & Son, Lyons.—Glues, gelatins, bone phosphates, etc. 200
- 27 Joseph, Victor, Petit Quévilly, near Rouen.—Oil for burns. 200
- 28 Lefebvre, Fortuné, Illiers, Eure & Loire.—Green water. 200
- 29 Reynal, Léonce, Paris.—Pharmaceutical preparations. 200
- 30 Rigand & Dusard, Paris.—Chemical and pharmaceutical preparations. 200
- 31 Rubaton, Ges., & Co., Marseilles.—Carbonate of soda. 200
- 32 Solvay & Co., Varangeville, Dombsie, Mewithe and Moselle.—Chemical products. 200
- 33 Torchon, Ch., Paris.—Pharmaceutical preparations. 200
- 34 Hottot, A., & Co., Paris.—Pepsin and other digestive preparations. 200
- 35 Thomas Brothers, Avignon, Vaucluse.
 - a Chemical products; artificial alizarine, sulphuric acid, etc. 200
 - b Madders. 202
- 36 Coux Roseaux, Asnieres, near Paris.—Oils and greases; covering for steam pipes. 201
- 37 Poiret & Son, Paris.—Soap in the form of letters and various ornaments. 201
- 38 Bourgeois & Co., Paris.—Machine oils. 201
- 39 Jolivet, L., Paris.—Wax tapers. 201
- 40 Deutsch, A., Paris.—Machine oils; refined petroleum. 201
- 41 Chivot, Naudé, Amiens, Somme.—Machine oils. 201
- 42 Roux, Charles, jr., Marseilles.—Soaps and raw materials; olive oil for dyers. 201
- 43 Rigaud & Co., Paris.
 - a Toilet soaps. 201
 - b Perfumery. 203
- 44 Violet, Godefroy, & Co., Paris.
 - a Soaps. 201
 - b Fine perfumery and raw materials. 203
- 45 Richter, F., Lille, Nord.—Ultramarine blue. 202
- 46 Berthoud & Co., Paris.—Blackening. 202
- 47 Antoine's, L., Són, Paris.—Writing inks. 202
- 48 Chiraux, L., Cambray.—Blackening. 202
- 49 Clauseau, Father & Son, Palun & Co., Avignon, Vaucluse.—Madder extract. 202
- 50 Coes, E., & Co., St. Denis.—Paints and varnishes. 202
- 51 Julien, A., & Co., Marseilles.—Chemical products, submarine paint. 202

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

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- 53 Caron, L., Paris.—Cement and plaster dryer. 202
- 54 Guinon's Son & Co., Lyons.—Chemical products for dyeing and printing. 202
- 55 Gillet & Son, Lyons.—Chemical products for dyeing. 202
- 56 Guimet, Lyons.—Ultramarine blue. 202
- 57 Hardy, Milori, Ch. G., Paris.—Colors. 202
- 58 Jacquot & Co., Paris.—Blackening. 202
- 59 Kaulek, Adolphe, Puteaux, Seine.—Coloring materials. 202
- 60 Larenaudière, F., Paris.—Inks. 202
- 61 Lacroix, A., Paris.—Vitrifiable colors for china, faience, church windows, opal, and enamel. 202
- 62 Lorilleux, Ch., Paris.—Black and colored typographic and lithographic inks. 202
- 63 Plateau, E., Paris.—Writing inks. 202
- 64 Poirrier, A., Paris.—Chemical products, coloring materials. 202
- 65 Seurin, J., Paris.—Varnish, mastic, and oil colors. 202
- 66 Toiray, Maurin, Paris.—Writing inks. 202
- 67 Foubert, A., Paris.—Hair dyes. 202
- 68 Brochocki, C. D., & Co., Boulogne, Seine.—Javelle water. 203
- 69 Chiris, A., Grasse, Alpes Maritimes.—Perfumery and raw materials. 203
- 70 Colas, E., & Christoff, C., Paris.—Essence of roses. 203
- 71 Deleltres, Adolphe, Paris.—Perfumery. 203
- 71a Chouet & Co., Paris.—Dentifrice water. 203
- 72 Hermann, Louis, Paris.—Raw materials for perfumery. 203
- 73 Lautier Sons, Grasse, Alpes Maritimes.—Pomades, essential oils, essences, etc. 203
- 74 Mottett, J., & Co., Marseilles.—Raw materials for perfumery. 203
- 75 Roure, Bertrand, Son, Grasse, Alpes Maritimes.—Raw materials for perfumery; extracts and essences. 203
- 76 Seguin, Bordeaux.—Zenobia water and dyes. 203
- 77 Sensfelder, Arcueil, Seine.—Eye water and pomades. 203
- 78 Viard, F., Paris.—Perfumery. 203
- 79 Viguiet, Manager French Hygienic Society, Paris.—Figaro water. 203
- 80 Séguin, Paris.—Althocinum. 203
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- 88 Trichaud, A., Marseilles.—Tiles. 208
- 89 Boulenger, senior, Paris.—Incrusted mosaic pavement. 208
- 90 Gien Pottery Mfg. Co., Gien (Loiret).—Artistic faience. 210
- 91 Caille, Miss Fanny, Paris.—Artistic faience. 210
- 92 Montagnon, A., Nevers.—Artistic faience. 210
- 93 Howry, J., Paris.—Artistic china and faience, fancy furniture. 210
- 94 Hasslauer & de Champeaux, Givet (Ardennes).—Clay pipes. 210
- 95 Aubry, J., Bellevue (near Toul).—Artistic faience. 210
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- 98 Sergeant, Th., Paris.—Artistic faience. 211
- 99 Barbizet, Son, Paris.—Bernard Palissy faience. 211
- 100 Sohn, L., & Delabre, A., Paris.—Porcelain flowers, jewels, ornaments, crowns, and bouquets. 212
- 101 Woodcock, F., Paris.—Porcelain flowers and bouquet. 212
- 102 Blot, Paul, Paris.—China and glass. 213
- 103 Dètemmerman, P., Paris.—Porcelain flowers. 213
- 104 Vacquerel, P. E., Paris.—Decalcomania on porcelain. 213
- 105 Thierry, Paris.—Decorated china. 213
- 106 Field-Haviland, Ch., Paris.—Porcelain. 213
- 107 Hache, Ad., & Lehalleur Bros., Paris.—White and decorated porcelain. 213
- 108 Haviland & Co., Limoges.—China. 213
- 109 Floreffe Company, Jeumont (Nord).—Mirrors and glassware. 214
- 110 St. Gobain, Chaunay, & Cirey, Paris.—Plain, plated, and silvered glass; rough glass for skylights. 214
- 111 Pelletier, M. A., & Sons, St. Just on the Loire.—Stained window glass. 216
- 112 Appert, Lengele, & Co., Paris.—Glass cylinders. 216
- 113 Brocard, P. J., Paris.—Chandeliers and mirrors. 216
- 114 Souchet & Co., Paris.—Flowers in enamel. 216
- 115 Hue & Co., Paris.—Crystals for interior decorations. 216
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- 117 Poussielgue, Rusand P., Paris.—Church decorations. 217
- 118 Perrot, Henry, Paris.—Bronzes for furniture. 217

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- 120 Touchard, Ernest, Paris.—Special ornaments for churches. 217
- 121 Duplan, Hamot, & Co., Paris.—Furniture. 217
- 122 Brunet, Paul, Paris.—Bronze and goldsmiths' wares for churches. 217
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- 125 Mazaros, Riballier, Paris.—Artistic furniture. 217
- 126 Marga, Eugene, Paris.—Marble chimney piece. 217
- 127 Mayaud Bros., Paris.—Religious articles. 217
- 128 Marchand, I., Paris.—Decorated furniture. 217
- 129 Marchand, Louis-Léon, Paris.—Artistic bronzes for furniture. 217
- 130 Lichtenfelder, Paris.—Elastic steel seats. 217
- 131 Haffner, B., senior, Paris.—Safes with combination locks. 217
- 132 Kaffel Bros., Paris.—Bronze furniture with china, faience, crystal, and marble decorations. 217
- 133 Jolivet, L., Paris.—Candles for churches. 217
- 134 Houry, T., Paris.—Fancy furniture. 217
- 135 Gallais, A., Paris.—Lacquered furniture. 217
- 136 Froc, Robert, & Son, Paris.—Altars and religious statues. 217
- 136a Allard, Paris.—Furniture. 217
- 137 Eliaers, A. E., Paris.—Folding seats. 217
- 138 Cornu, E., & Co., Paris.—Bronzes. 217
- 139 Chovet, L., Paris.—Religious pictures. 217
- 140 Beysens & Beckers, Paris.—Religious articles. 217
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- 143 Sauvage & Ruck, Paris.—Bronze mantel ornaments. 217
- 144 Frenais, Armand, Paris.—Unplated and plated knives, forks, and spoons. 218
- 145 Bitterlin, Paul, jr., Paris.—Glassware. 218
- 147 Haviland & Co., Limoges.—Table china. 218
- 148 Field-Haviland, Ch., Paris.—Table china. 218
- 149 Hache, Ad., & Pepin, Lehalleur Bros., Paris.—Table china. 218
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- 155 Chabin, H., Paris.—Stained glass windows. 219
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- 157 Mansuy-Dotin, Jules, Paris.—Artistic enamels for furniture. 219
- 158 Pelletier, M. A., & Sons, St. Just sur Loire.—Stained window glass. 219
- 159 Pottier, Paris.—Artistic enamels, Limousin and Henry II. style. 219
- 159a Brot, Leopold, Paris.—Mirrors in gilt frames; mirrors in furniture. 219
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- 162 Neuville, J. B., Paris.—Heating apparatus. 222
- 163 Laperche, Paris.—Marble chimney pieces. 222
- 163a Bouhon & Co., Paris.—Bronze fire guards. 222
- 164 Aubry, T., Bellevue, near Toul.—Faience stoves. 222
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- 166 Roux, L., Lyons.—Heaters and chimney pieces. 222
- 167 Robinot, Ch., Paris.—Gas fixtures. 223
- 168 Carbon, Paris.—Lamps. 223
- 169 Peltier, E., & Paillard, A., Paris.—Metallic labels and boxes for preserves; direct printing upon metals. 224
- 170 Barau & Colas, Nantes (à la Ville en Bois).—Metallic jars for preserving. 224
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- 172 Letang, Th. I. B., Paris.—Chocolate moulds. 224
- 173 Gervais, A., & Co., Paris.—Kettles. 224
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- 175 Denet, E., Paris.—Copper moulds for alimentary pastes. 224
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- 177 Dienheim-Brochocki, T. O. de, Paris.—Automatic disinfectors. 226
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

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Chemical Manufactures.

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- 1 Kahlbaum, C. A. F., Berlin.
- 2 D'Andrian & Wegehn, Mülhausen.
- 3 Vorster & Grüneberg, Kalk, near Cologne.
- 4 Schuchardt, Theodor, Görlitz.
- 5 Koepp, Rud., & Co., Oestrich.
- 6 Saame & Co., Ludwigshafen.
- 7 Th. Wurtz's successors, Leipsic.
- 8 Von Heyden, F., Dresden.
- 9 Chemical Joint Stock Co., Berlin.
- 10 Jobst, Friedrich, Stuttgart.
- 11 Fischer & Schmitt, Höchst.
- 12 Brohme & Co., Bergen-on-Dosse.
- 13 Bartels & Kroyemann, Frohse.
- 14 Trommsdorff, H., Erfurt.
- 15 Lindenbauer, Otto, Hanau.
- 16 Marquart, L. C., Bonn.
- 17 Loefflund, Edward, Stuttgart.
- 18 Suhr, W., Altona.
- 19 Heyl, J. F., & Co., Berlin.
- 20 Sauberlich, Anton, Zwickau.
- 21 Bloedner's, Joh. Chr., Son, Gotha.
- 22 Hübner, B., Rehmsdorf.
- 23 Saxon Thuringian Joint Stock Co., Halle-on-Saale.
- 24 Ruffer & Co., Breslau.
- 25 Hsigen, G. C., Nassmühle, near Hanau.
- 26 Gans & Leonhardt, Frankfurt-on-Main.
- 27 Clever, Joh., Werden.
- 28 Aniline Manufacturing Co., Rummelsburg and Berlin.
- 29 Zeltner, Johann, Nuremberg.
- 30 Gysae, Robert, Oberlössnitz.
- 31 Ultramarine Works, Marienberg.
- 32 Kaiserslautern Ultramarine Works, Kaiserslautern.
- 33 Rosenstein, W., Stettin.
- 34 Vossen Bros., Aix-la-Chapelle.
- 35 Hirsch & Merssenich, Cologne.
- 36 Bayer, Fr., & Co., Barmen.
- 37 Johann Anton Farina, zur Stadt Mailand, Cologne.
- 38 Mack, Ernst, Reichenhall.
- 41 Goedecke & Co., Leipsic.

- 41a Honigman, M. & Co., Aix-la-Chapelle.
- 42 Kluge & Pöritsch, Leipsic.
- 42a Sieperman, C. F., & Son, Elberfeld.
- 43 Bernhardt, J., Leipsic.
- 43a Gebens, Ernst, Baden-Baden.
- 44 Brückner, Lampe & Co., Leipsic.
- 45 Sachse, E., & Co., Leipsic.
- 46 Haensel, Heinrich, Pirna-on-Elbe.
- 47 Wolff, F., & Son, Carlsruhe.
- 48 Langwisch, Bernh., Hamburg.
- 49 Lohse, Gustav, Berlin.
- 50 Wilhelmi, F., Reudnitz.
- 51 Lüder & Leidloff, Dresden.
- 52 Kunheim & Co., Berlin.
- 53 Haarmann, W., Holzminden.
- 53a Royal Prussian & Ducal Brunswick Smelting Works of the Lower Hartz, Gaslar.—Sulphuric acid, intermediate products, etc. 200
- 54 Nörr, Eugene, Berlin.—Siphon valve. 200

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EXHIBIT.

- 54a Royal Salt Works, Stassfurt.—Rock salt, salts of potassium, magnesium, etc. 200
- 54b Chemical Factory, Stassfurt.—Potassium salts, chloride of potassium, manure salts, etc. 200
- 54c Chemical Factory, Leopoldshall.—Chloride of potassium, sulphate of potash, glauher salts, etc. 200
- 54d Chemical Factory of Nett, Faulwasser, & Co., Leopoldshall.—Chloride of potassium. 200
- 54e Zimmer & Co., Stassfurt.—Artificial salts of chloride of potassium, manure salts, etc. 200
- 54f Lindemann, G., & Co., Stassfurt.—Chloride of potassium. 200
- 54g Douglas, B. W. B., Westeregeln.—Salt, medical and manure salts; plans, section of the mine. 200
- 54h Lairitz, C. & L., Remda.—Pine oil. 201

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- 57 Fuchs, Gg. L., & Sons, Fürth.
- 58 Nuchterlein, Fried., Fürth.
- 59 Metz, Friedrich, Fürth.
- 60 Steeber & Segitz, Fürth.

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- 61 Schaetsler, G. E., Nuremberg.
 62 Weidner, J. L. & P., Nuremberg.
 63 Reich, H. & Chr., Nuremberg.
 65 Eiermann & Tabor, Fürth.
 67 Spiegelberger, Ludwig, Fürth.
 68 Cramer, J. W., Fürth.
 69 Beckh, Georg Adam, Nuremberg.
 71 Kühn's Wire Factory, Nuremberg.
 72 Meier, J. C., Fürth, near Nuremberg.
 73 Beyer, Edward, Chemnitz.—Copying, writing, and fancy inks. 202
 74 Jäenecke Bros. & F. Schneemann, Hanover.—Printing inks; varnishes. 202
 75 Vogel, M. B., Leipzig.—Colors. 202
 75a Lesser, G., & Co., Leipzig.—Preparations for finishing textile manufactures. 202
 76 Farina, Johann Maria, Jülichspatz No. 4, Cologne.—Eau de Cologne. 203
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 83 Gundlach, W., & Son, Grossalmerode.—Fire-clay crucibles. 207
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 90 Hanke, Reinhold, Höhr, near Coblenz.—Antique German pottery. 213
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 96 Berlin, J. W., Fürth.
 97 Heilbronn, Leop., Fürth.
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- 135 Goerts & Kirch, M. Gladbach.
- 136 Willemsen, P., Widow, M. Glad-
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- 137 Rosenberg & Cohen, M. Gladbach.
- 138 Schlafhorst & Brüel, M. Gladbach.
- 139 Everling, Carl, & Co., M. Gladbach.
- 140 Ercklens & Reuter, M. Gladbach.
- 141 Bötterling & Schultze, M. Glad-
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- 142 Essers, Martin, M. Gladbach.
- 143 Croen Bros., M. Gladbach.
- 144 Langen, Kruchen, & Borrenkott,
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- 145 Wolff, Fr., M. Gladbach.
- 146 Hellendall & Steinberg, M. Glad-
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- 147 Grunwald & Klei, Rheydt.
- 148 Kropp, J. P., Rheydt.
- 149 Nacken, G. H., Rheydt.
- 150 Sanders, W., Rheydt.
- 151 Ax, Heinrich, Rheydt.
- 152 Oechelhäuser, Rheydt.
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- 154 Erckens & Co., Grevenbroich.
- 155 Rolfs & Co., Siegfeld.

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173 Ackens, Grand, Ry. & Co., Eupen.

174 Delius, C., Aix-la-Chapelle.

175 Jansen, Joh. Wilh., Montjoie.

176 Knops, Aloys, Aix-la-Chapelle.

177 Schöller, J. P., Düren, near Aix-la-
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179 Weiss Bros., Leipsic.—Cloths. 235

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186 Herminghaus & Co., Elberfeld.

187 Jung & Simons, Elberfeld.

188 Lucas Bros., Elberfeld.

189 Schaefer & Co., Elberfeld.

190 Weerth, de, & Co., Elberfeld.

191 Wolff, R. & E., Elberfeld.

192 Worsted Spinning Mills, Kaisers-
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 304 Bacles & Hatry, Saargemünde.—Silk plushes. 247
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- 305 Hake, Mrs. von, Berlin.—Ladies' underwear. 250
 306 Gros & Co., Bruchsal, Baden.—Corsets. 250
 307 Ottenheimer, J. M., & Sons, Stuttgart.—Corsets. 250
 308 Gulden, Heinrich, Chemnitz.—Gloves. 251
 309 Woller, Fr. Ehreg., Stollberg, near Chemnitz.—Cotton hosiery. 250
 310 Kaufmann, A. & C., Berlin.—Paper collars and cuffs. 250
 311 Ereutznach, Ed., successor, Chemnitz.—Cotton hosiery. 250
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 329 Hahn, Carl, Idar.
 330 Leyser, Wilhelm, Idar.
 331 Wild, J. C., IX, Idar.
 332 Hahn, Philipp, Idar.
 333 Heydt, Friedrich, Idar.

- 334 Caesar, Louis, Idar.
 335 Herringer, Johann, Idar.
 336 Fuchs, Friedrich August, Oberstein.

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- 337 Spranger, N., Schwüb. Gmünd.
 338 Renner & Buchler, Schwüb. Gmünd.
 339 Wöhler, Edward, Schwüb. Gmünd.
 340 Ott, B., & Co., Schwüb. Gmünd.
 341 Zieher, Ottmar, Schwüb. Gmünd.
 342 Erhard & Sons, Schwüb. Gmünd.
 343 Hauber, Gustav, Schwüb. Gmünd.
 344 Soergel & Stollmeyer, Schwüb. Gmünd.
 345 Pleuer & Co., Stuttgart.
 346 Strohmeier & Co., Stuttgart.
 347 Gabler Brothers, Schorndorf.
 348 Ritter & Co., Esslingen.
 349 Zimmermann, E. G., Hanau.
 350 Geissel & Hartung, Hanau.
 351 Kurr-Schlüttner, C., Hanau.
 352 Steinhauer & Co., Hanau.
 353 Weber, O., & Co., Hanau.
 354 Weishaupt, C. M., Sons, Hanau.
 355 Bissinger, C., Sons, Hanau.
 356 Kraul & Bier, Hanau.
 357 Hertel, C., & Son, Hanau.
 358 Krug, J. M., Hanau.
 359 Winkler, Carl, Hanau.
 360 Drescher & Kiefer, Hanau.
 361 Roth, J., Hanau.
 362 Schehl, C. W., Hanau.
 363 Zeuner, Hugo, Hanau.
 364 Dingeldein Bros., Hanau.
 365 Storck & Sinsheimer, Hanau.
 366 Baker & Co., Hanau.
 367 Volz-Bier, A., Hanau.
 368 Schoenfeld, E., jr., Hanau.
 369 Schantz & Katz, Pforzheim.
 370 Spahn, C. C., Pforzheim.
 371 Keller, Heinrich., Pforzheim.
 372 Lay, Edward, Pforzheim.
 373 Heidegger, W., & Co., Pforzheim.
 374 Deyhle Bros., Pforzheim.
 375 Kiehle, Aug., Pforzheim.
 376 Gerwig, Aug., Pforzheim.
 377 Bizer Bros., Pforzheim.
 378 Wild & Co., Pforzheim.
 379 Becker, Fritz, Pforzheim.
 380 Siebenpfeiffer, C., Pforzheim.
 381 Lodholz, Friedrich, Pforzheim.
 382 Koch & Bergfeld, Bremen.
 383 Humbert & Heylandt, Berlin.
 384 Binder, W., Schwüb. Gmünd.
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297 Issmayer, J. A., Nuremberg.
299 Norrmann, J., Nuremberg.
300 Helmbrecht, G., Nuremberg.
301 Schleuerflug, E., Nuremberg.
302 Stief, J., Nuremberg.
303 Miller, Th., Nuremberg.
304 Strobel, J. P., Nuremberg.
305 Baudenbacher, C., Nuremberg.
306 Kithil, A., Nuremberg.
307 Uebelacker, L., Nuremberg.
308 Hess, Math., Nuremberg.
310 Fischer, J. G., Erlangen.
311 Schlenk & Lutzenberger, Nurem-
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312 Probst, Gottfr., Nuremberg.
313 Hahn, Gottlieb, Fürth.
314 Ott, Gebhard, Nuremberg.
315 Ziegele & Hauck, Fürth.
316 Keller, Conrad, Fürth.
319 Pruckner, D., Munich.
320 Bettman & Kupfer, Bayreuth.
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122 Keller & Alt, Vienna.—Clothing. 250
124 Mottl Sons, M., Prague.—Men's
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126 Strasschitz, Beermann, Prague.—
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127 Schwarzmann, D., & Co., Vienna.—
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- 272 Bauer & Pokorny, Vienna.—Meerscham pipes. 254
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- 282 Wittek, Adalbert, Vienna.—Mother-of-pearl buttons. 254
- 285 Steindl, Carl, Vienna.—Mother-of-pearl buttons. 254
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- 308 Bambula, John, Vienna.—Bronze goods, albums, writing portfolios, belts. 254
- 310 Unger, Franz, Vienna.—Portemonnaie, frames for manufacture of leather fancy goods. 255
- 315 Seewald, Michael, Vienna.—Leather ware and trinkets. 255
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- 317 Osteritter, Joseph, Vienna.—Leather articles. 255
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- 323 Opitz & Son, Carl, Teplitz, Bohemia.
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- 340 Perl, Joseph, Klausenburg, Hungary.—Teeth, sets of teeth. 277
- 341 Zsigmondy, Adolf, Vienna.—Teeth. 277
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- 342 Wertheim, Baron Franz, Vienna.—Complete representation of the Austrian tool manufacture. 280
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- 346 Winkler, Alois, Vienna.—Cast zinc articles, plates, emblems, letters, and coat of arms. 283
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351 Hausmann, Wilhelm, Reichenberg.—Rope articles, twine, cords, girths. 287

352 Kohl, August, Vienna.
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361 Wuste, F., Vienna.—Cylinder coverings. 543

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362 Frankl, J. G. & L., Vienna.—Wood specimens for the manufacture of furniture. 602

Water Animals, Fish Culture and Apparatus.

364 Nachtmann, Jacob, Tannwald, Bohemia.—Chamber leech aquariums. 640

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- 4 Amblet & Poncet, Geneva.—Oil for watches and instruments of precision. 201
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- 6 Vaucher, L., Peseux, near Neuchâtel.—Animal oil for chronometers and fine watches. 201
- 7 Bindschedler & Busch, Basle.—Raw materials for the manufacture of dyes, aniline dyes, artificial alizarine. 202
- 8 Brunnschweiler & Son, St. Gallen.—Printing inks, inks for Morse & Hughes' apparatus, extracts of ink in powder. 202
- 9 Durand & Huguenin, L., Basle.—Naphthalene, resorcin, fluorescein, cocene, phthaline and solutions, safranin, gallein, cerulein, steam blue, etc. 202
- 10 Bühler, Emile, Neuchâtel.—Hair regenerator, pomade, balsam, tooth-water, quinine-water. 203

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- 16 Oetiker, M. R., Männedorf, Ct. Zurich.—White and colored cotton bed-covers and table-cloths. 230
- 17 Schlaepfer, J. U., Waldstatt, Ct. Appenzel, Inner Rhodes.—Muslin. 230
- 18 Pierz, Henri, Zurich.—Cotton goods. 231
- 19 Wallenstadt Fancy Cotton Goods Mills, Wallenstadt, Ct. St. Gallen.—Fancy cotton goods. 231
- 20 Pierz, Henri, Zurich.—Turkey-red printed handkerchiefs, cashmere shawls, door-curtains, chintz. 232
- 21 Hanhart-Solivo, J., Dietikon, Ct. Zurich.—Cambrics, handkerchiefs, shawls, chintzes. 232

- 22 Asmoos Weaving Mills, Asmoos, Ct. St. Gallen.—Figured cotton goods. 232
- 23 Schneider, C. F., Dättlikon, Ct. Zurich.—Lint for hospitals, colored wadding for jewelry. 233

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- 25 Siegenthaler, Sl., Enggstein, near Worb, Ct. Berne.—Boots and shoes of felt, with and without wooden soles, felt soles, felt tablets for watch-makers, filtering bags, felt trimmings. 235
- 26 Ernst, Ferdinand, Winterthur, Ct. Zurich.—Goods of wool and mixtures of wool. 238
- 27 Schnyder, J. J., Wädenswil, Ct. Zurich.—Worsted horse-hair and fibre for mattresses and upholstery, horse-tails, bristles. 240

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- 28 Baumann, senior, & Co., Zurich.—Silks. 243
- 28a Zämslein & Müller, Basle.—Argal, silk waste, and fabrics of silk waste. 243
- 29 Baumann & Streuli, Horgen, Ct. Zurich.—Silks. 243
- 30 Dufour & Co., Thal, Ct. St. Gallen.—Silk bolting-cloth, silk grit-gauze. 243
- 31 Egli & Sennhauser, Zurich.—Silk bolting-cloth, middlings purifiers. 245
- 32 Frey-Feer, J., & Co., Aargau, Ct. Aargau.—Silk ribbons, faille, cord-edged taffetas, sarsenets, listons, satins. 245
- 33 Heidegger, Wegmann, & Co., Seefeld, Zurich.—Silk bolting-cloth. 245
- 34 Homberger Bros., Wetzikon, Ct. Zurich.—Silk bolting-cloth. 243
- 35 Jansen, Bodek, & Hertz, Riesbach, near Zurich.—Silks and satins. 245
- 36 Adlischweil Silk Goods Factory, Adlischweil, near Zurich.—Silks. 245
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- 39 Reiff-Huber, Zurich.—Silk bolting-cloth. 245
- 40 Rütachi, S., & Co., Zurich.—Silks and satins. 245
- 41 Ryffel & Co., Stäfa.—Silks. 245

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43 Schröder, Wilhelm, & Co., Zurich.—Silks. 245
44 Schwarzenbach, Landis J., Thalwil, near Zurich.—Silks. 245
45 Stapper, Joh., Sons, Horgen, Ct. Zurich.—Silks. 245
46 Stunzi & Sons, Horgen, Ct. Zurich.—Silks and satins. 245

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- 47 Blumer & Wild, St. Gallen.—Hosiery, ladies' fancy articles. 250
48 Bourquin, C. F., Cormondrèche, near Neuchâtel.—Wool hosiery, jackets, and waistcoats. 250
49 End-Ulmi, Ali., Lucerne.—Knitted under-garments. 250
50 Hess, Gebr., Amrisweil, Ct. Thurgau.—Colored shirts and over-shirts. 250
51 Huggenberger, U., Frauenfeld, Ct. Thurgau.—Hosiery. 250
52 Meyer-Waspi & Co., Altstetten, near Zurich.—Knitted under-garments. 250
53 Wiki, B., Lucerne.—Gentlemen's clothing. 250
54 Bell, August, Kriens, near Lucerne.—Crimoline braids. 251
55 Chiesa Bros., Locarno, Ct. de Tessin.—Braids and straw hats, Canton Tessin specialty. 251
56 Eich & Co., Lensburg, Ct. Aargau.—Horse-hair braids, straw-plaitings, cotton tress-work, borderings, hair-cloth. 251
57 Indermühle, E. Th., Berne.—Straw hats. 251
58 Isler, Aloyse, & Co., Wildegg, Ct. Aargau.—Hair and cotton plaits, fancy goods of hair, straw, cotton, and silk for hats and bonnets. 251
59 Isler, Jacob, & Co., Wohlen, Ct. Aargau.—Straw goods. 251
60 Walser, Conrad, Wohlen, Ct. Aargau.—Straw hats, plaits, and fancy articles of straw, crinoline, cotton, and manila hemp, tissues of straw, silk, and other materials for fancy boxes, sparterie, embroidery, and ornaments for bonnets. 251
61 Alder Bros., Herisau, Ct. Appenzell, Inner Rhodes.—Hand and mechanical embroideries. 252
62 Alder & Meyer, Herisau, Ct. Appenzell, Inner Rhodes.—Embroidered trimmings. 252
63 Baerlocher-Custer, Rheineck, Ct. St. Gallen.—Embroidery, lace curtains, tidies, bed-covers, pillow-case covers. 252
64 Basquin, Hector, & Schweizer, St. Gallen.—Machine embroideries. 252
65 Bion & Tschumper, St. Gallen.—Mechanical embroideries. 252
66 Fisch Bros., Buhler, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries. 252
67 Göldy, A., & Co., St. Gallen.—Mechanical embroideries, Hamburg edgings and insertions. 252
68 Hirschfeld Bros. & Co., St. Gallen.—Swiss lace curtains. 252

- 69 Iklé Bros., St. Gallen.—Mechanical embroideries. 252
70 Locher Bros., Speicher, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries on silk. 252
71 Wülfinger Machine Embroidery Establishment, near Winterthur, Ct. Zurich.—Colored embroidery by machinery, Hamburg edgings. 252
72 Schettlin & Widmer, St. Gallen.—Mechanical embroideries. 252
73 Stäheli-Wild, C., St. Gallen.—Hand and mechanical embroideries. 252
74 Steiger & Co., Herisau, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries, lace curtains. 252
75 Strauss, D., & Co., St. Gallen.—Lace curtains, drop laces, embroideries. 252
76 Stursenegger & Ruts, Trogen, Ct. Appenzell, Inner Rhodes.—Cravats, edgings. 252
77 Sutter-Dörig, R., Appenzell.—Hand and machine embroidery. 252
78 Tobler, Uir., & A., Rheineck & Thal, Ct. St. Gallen.—Machine embroidery. 252
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80 Zellweger, J. C., Trogen, Ct. Appenzell, Inner Rhodes.—Mechanical embroideries. 252
81 Drawing School of the Board of Trade, St. Gallen.—Embroideries executed from designs of the drawing school. 252
82 Urech, E., Herisau, Ct. Appenzell, Inner Rhodes.—Mechanical embroidery. 252
82a Zürcher-Bansiger, J., Teufen, Ct. Appenzell, Inner Rhodes.—Mechanical embroidery. 252
83 Petit-Pierre & Bryson, Geneva.—Jewelry. 253
84 Gay, Jean, Geneva.—Watch chains. 253
84a Meylan & Mertens, Ed., Geneva.—Gold chains and chatelaines. 253
85 Jaccard, Eugène, St. Croix, Ct. de Vaud.—Plate engraved with flowers, ornaments, and devices relating to the Centennial. 254
86 Rohr, Walter von, A., Mülliswyl, Ct. Solothurn.—Combs. 254

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- 88 Müller, Johs., Schaffhausen.—German, French, English, and Spanish playing cards, railway tickets. 252

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- 89 Swiss Manufacturing Co., Neuhausen, near Schaffhausen.—Vetterli-system, infantry and target rifles, blank cartridges. 253
89a Schmidt, Major, Berne.—Rifle and revolver. 256

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- 90 Durieu, Oettli, & Co., Vevay, Ct. Vaud.—Milk-powder. 273

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- 91 Gerber & Co., Thun, Ct. Berne.—Condensed milk, children's food, medical condensed milk. 273
- 92 Lapp, C., Freiburg.—Food for children, condensed milk. 273
- 93 Naumann-Burkhardt, H., Basle.—Extract honey, syrup, and flour of meat. 273
- 94 Nestlé, Henry, Vevay, Ct. Vaud.—Milk food or lacteous farina. 273
- 94a Wander, G., Berne.—Extracts of malt and malt drops. 273
- 95 International Bandage-shift Factory, Schaffhausen.—Dressings, lint, appliances for the dressing of wounds, pharmaceutical apparatus. 276

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 96 Spillmann, Heinrich, Unterstrass, near Zurich.—Engineering tools. 280
- 97 Schneider, C. F., Geneva.—Complicated pocket-knives. 280
- 98 Bürgin, Bros., Schaffhausen.—Up-holsterers' nails. 280
- 98a Le Coultre, Jacques, Sentier, Ct. Vaud.—Razors. 281
- 98b Bossi, Gaetano, Locarno, Ct. Tessin.—New system of safety locks. 284

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- 99 Bally & Schmitter, Aargau, Ct. Aargau.—Elastic webs for boots. 285

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- 1 Anastasio, Giuseppe, Lugano, Ct. Tessin.—Cigars. 623
- 2 Kottmann, J., Solothurn.—Cigars. 623
- 3 Sauter, A., Diessenhofen, Ct. Thurgau.—Cigars. 623

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- 4 Schleife Tanneries, Winterthur, Ct. Zurich.—Blackened calf leather. 624

- 5 Hürthmann, J. J., Rappetswyl, Ct. St. Gallen.—Swiss honey. 624

- 6 Society for Bee Culture, Lukmanier, Sobrio, Ct. Tessin.—Honey and wax. 624

- 7 Coffee Surrogate Factory, Zurich.—Kig-mehl (surrogate of coffee), conserved coffee. 626

- 8 Robbi & Co., Geneva.—Chocolate. 626

- 9 Schweigert, Auguste, Geneva.—Theodoro's sauce. 626

- 10 Suehard, Ph., Neuchâtel.—Chocolate, cacao. 626

- 11 Almen, von, & Kopp, Fleurier, Ct. Neuchâtel.—Absinthe. 626

- 12 Berger, C. F., Couvet, Ct. Neuchâtel.—Absinthe. 626

- 13 Bernhard, S., Samaden, Engadin, Ct. Graubünden.—Jva bitter, Jva perfume, and tincture. 626

- 14 Bolle, L. A., Son, Verrières, Ct. Neuchâtel.—Green and white absinthe. 626

- 15 Grandpierre, J., Geneva.—Vermouth. 626

- 16 Henny & Moulet, Fleurier, Ct. Neuchâtel.—Absinthe. 626

- 17 Kirschwasser Company Zug, Zug.—Kirschwasser. 626

- 18 Nievergelt, Joh., Maschwanden, Ct. Zurich.—Kirschwasser. 626

- 19 Pernod, Ed., Couvet, Ct. Neuchâtel.—Green and white absinthe, gentian-liquor, kirschwasser. 626

- 20 Scherer, Bros., Meggen, Lucerne.—Kirschwasser. 626

- 21 Schmidt, Joseph, Zug.—Sweet-liquors, righibitter, stomach-bitters, kirschwasser. 626

- 22 Stauffenegger, Chr., Travers, Ct. Neuchâtel.—Absinthe. 626

- 23 Gessler-Zeller, J., Basle.—Leckerly of Basle. 626

- 24 Mattmann, Brothers, C. & J., Horw, near Lucerne.—Italian pastry. 626

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

BELGIUM.

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Chemicals, Ceramics, Glass..

Chemical Manufactures.

- 1 Hemptinne, A. de, Son, Molenbeek, St. Jean, near Brussels.—Plan of apparatus for manufacturing sulphuric acid. 200
- 3 Meeus, M. & J., Antwerp.—Refined sulphur. 200
- 4 Solvay & Co., Couillet, near Charleroi.—Chemicals, soda-salt. 200
- 6 Des Cressonnières (widow) & Son, Molenbeek, St. Jean, near Brussels.—Toilet soap. 201
- 8 Staes, Sproelants, Termbde, East Flanders.—Linseed, rape-seed, hemp-seed, cotton, and other oils. 201
- 9 Botelberge, Gustave, & Co., Melle, near Ghent, East Flanders.—Ultramarine. 202
- 10 Gilkinet, C. J., Enival, near Verviers.—*Cake-sponill*, or special ink, to point out the defects on cloth and dyestuffs. 202
- 11 Lummerzheim, M. H., & Co., Wondelgem, near Ghent, East Flanders.—Bituminous and re-asphaltic roof and ship sheathing paper, lampblack. 202
- 12 Offergeld Bros., Forest, near Brussels.—Red, brown, and chestnut iron paint. 202
- 13 Planche, Edouard, Son, Laeken, near Brussels.—Writing ink. 202
- 14 Planche, Melchior, Ixelles, near Brussels.—Writing ink. 202
- 15 Singer, Max, Tournai (Hainaut).—Aniline products for dyes extracted from coal-tar, etc. 202
- 16 White Lead & Iron Paint Joint Stock Co., Anderghem, near Brussels.—White lead, iron paint, mastics. 202
- 17 Van der Velden, Leopold, Liège.—Writing, glossing, and indelible ink, liquid glue, etc. 202
- 18 Van Laer, Guillaume, Verviers.—Dyers' practical guide, mordant processes. 203
- 19 Marbaix, Auguste de, Antwerp.—Aromatic liquor, Anvers water, essential oil, caraway essence, cedar essence, Florentine iris, and oil of cloves. 203
- 20 Cooppal & Co., Wetteren, East Flanders.—Charcoal, sulphur, powder and cartridges. 204

Ceramics—Pottery, Porcelain, Glass, etc.

- 23 Seilles les Andenne & Bouffmoult Joint Stock Co. of Refractory Products and Plastic Clay, Seilles, near Andenne,

- Province of Liège.—Burat refractory earthenware, brick for gas furnaces, etc., gas retorts, refractory plastic clay. 207
- 25 Wingender Bros., Chokier, near Liège.—White and colored clay pipes. 210
 - 26 Floreffe Co., Floreffe, near Namur.—Plate glass for windows. 214
 - 26a Schmidt Brothers & Sisters, Lodelinsart.—Window glass. 214
 - 27 Andria, Lambert, & Co., Marchienne-au-Pont, near Charleroi (Hainaut).—White window and heavy muslin glass. 214
 - 27a National Glass Works Joint Stock Co., Jumet.—Window glass. 214
 - 28 Baudoux & Co., Charleroi.—White and colored window and unpolished and corrugated muslin glass, with variegated rosettes engraved and cut. 214
 - 29 Baudoux, E., & Jonet, Lodelinsart.—Colored and fancy window glass. 214
 - 30 Benmert & Rivort, Jumet, near Charleroi.—Window glass. 214
 - 31 Bougard, A., Le Brun, H., & Co., Roux, near Charleroi.—Window glass. 214
 - 32 Dorlodot, L. de, & Co., Lodelinsart.—Unpolished and corrugated window glass, greenhouse, cathedral, and stained glass, old glass imitation. 214
 - 33 Looper, de, Maldin, & Co., Courcelles.—Window glass. 214
 - 34 Dessent, J., & Bros., Jumet.—Window glass. 214
 - 35 Fourcault-Frison, A., & Co., Dampremy, near Charleroi.—Window glass. 214
 - 36 Hans, Octave, & Co., Jumet, near Charleroi.—Window glass. 214
 - 37 Lambert, Casimir, Son, Charleroi.—Window glass. 214
 - 38 Lambert, L., & Co., Hamendes Glass Works, Jumet.—Window glass. 214
 - 39 Leurant, Emile, Jumet (Haigne), near Charleroi.—Glass cylinder. 214
 - 40 Mondron, Leon, Lodelinsart, near Charleroi.—Window glass. 214
 - 41 Monnoyer, J., & Son, Dampremy, near Charleroi.—Window glass. 214
 - 42 Morel, Alphonse, Lodelinsart, near Charleroi.—Window glass. 214
 - 43 Schmidt, A., & Co., L'Alliance Glass Works, Jumet (Brulotte), near Charleroi.—Window and fluted glass. 214
 - 44 Schmidt, Devillez, & Co., Dampremy, near Charleroi.—Window glass. 214
 - 45 Glass Works Joint Stock Co., Charleroi.—Window glass. 214

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Glass, Furniture, Woven Goods.

- 46 Plate Glass Manufacturing Joint Stock Co., Courcelles, near Charleroi.—Clean polished and plated glass. 214
- 47 Hainaut Glass Manufacturing Joint Stock Co., Roux, near Charleroi.—Plate glass for windows, silyered glass, samples of plate glass at different stages of manufacture. 214
- 48 Glassware & Plate Glass Manufacturing Joint Stock Co., Brussels.—Framed plated and unplated mirrors. 214
- 49 Bougard, A., Manage (Hainaut).—Crystals. 216
- 50 Boussu, Familleureux & Blanc Misseron Glass Works Joint Stock Co., Boussu, near Mons (Hainaut).—Crystals and half crystals, dinner service, and articles for lighting. 216

Furniture and Objects of General Use in Construction and in Dwellings.

- 51 Demeuter, Leopold, Son, Brussels.—Furniture and hangings. 217
- 53 Goyers, J. A. & H., Bros., Louvain.—Pulpit in the ogive style. 217
- 54 Snyers, Rang, & Co., Brussels.—Carved walnut furniture, renaissance style, ebony inlaid with ivory. 217
- 55 Teugels, Emile, Malines, Province of Anvers.—Carved furniture, a chair of the sixteenth century, a Flemish chair of the sixteenth century. 217
- 56 Zech, H., Malines.—Ebony bureau, arm-chair, and book-case. 217
- 57 Boucneau, Leon, Schaarboek, near Brussels.—Marble mantelpiece, Belgian mosaic marble panels for dining-room decoration, brick pavement and Belgian mosaic marble table. 217
- 58 Guyaux Bros., Bouffoulx, near Charleroi.—Black marble, St. Anne mantelpiece. 217
- 59 Lintelo, A., Brussels.—Clocks and marble slabs. 217
- 60 Parmentier, Gosset, & Co., Sivy (Hainaut).—Marble mantelpieces with vases and clocks. 217
- 61 Tainay, F., Brussels.—Marble mantelpieces. 217
- 62 Brodure, Mathieu, Spa.—Painted, varnished, and gilt wooden work. 219
- 63 Bronfort Bros., Spa.—Painted and ornamented wooden boxes, etc. 219
- 64 Debrus-Leclaire (widow), Spa.—Painted and ornamented wooden boxes, etc. 219
- 65 Debrus, Willem Alexandre, Spa.—Wooden boxes, etc. 219
- 66 Krins, E., Spa.—Wood carvings. 219
- 67 Van Ginderdeuren, Brussels.—Wood carvings, furniture. 219
- 68 Costermans, Jean, Brussels.—Hearth of the Flemish renaissance. 222
- 69 Miedel, Dieudonné, Sombreffe, near Gembloux, Province of Namur.—A brick layer ventilator for chimneys and coal-mine pits. 222
- 70 Serts, G. N., Director of the State Railroad.—A plan for utilizing the heat wasted by kitchen stoves, and a heating and ventilating system for passenger railroad cars. 222
- 71 L'Eclair Joint Stock Co., Kessel-Loo, near Louvain (Brabant).—Match tapers. 223
- 73 Pas, Gerard, Brussels.—Silver, copper, and bronze household utensils. 224
- 74 Tremouroux, N. & J., Bros., Saint Gilles, near Brussels.—Polished, varnished, bronzed, enameled, plated, and wrought iron household utensils. 224
- 75 Valania, Jean, Ixelles, near Brussels.—Machines for confectioners. 224
- 76 Vanderrest, Guillaume, Brussels.—Machine for the manufacture of sweet-meats. 224
- 76a Dogny, Jean Baptiste, Brussels.—Balusters, ornaments for door panels. 227

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- 77 Baertsoen, A., & Buysse, A., Ghent.
a Cotton textile fabrics. 230
b Linen textile fabrics. 233
- 78 Smet, E. de, & Co., Ghent.—Thread in packages; warped, unbleached and dyed skeins. 230
- 79 Desmet Bros., Ghent.—Dyed, bleached, and unbleached textile fabrics. 230
- 80 Parmentier, Van Hoegarden & Co., Ghent.—Spun cotton, bleached and unbleached printed cotton textile fabrics. 230
- 81 Devos, Camille, & Brother, Courtrai.—Stuff for trousers. 231
- 82 Idiers, Emile, Auderghem, near Brussels.—Spun cotton, dyed Adrianople red, etc. 231
- 85 Brandt, Jacques de, Alost.—Draped and damasked table linen. 233
- 86 Declercq, Clement, Issegthem, East Flanders.—Twisted linen thread for machine and hand sewing. 233
- 87 Govaert Bros., Alost, East Flanders.—Canvas, sackcloth and bags for grain, guano, salt, etc. 233
- 88 Leirens-Ellaert of EHaert-Cools, Alost, East Flanders.—Thread and tow for weaving, sewing thread. 233
- 90 Re y, senior, Brussels.—Linen fabrics. 233
- 91 Sak-Volders, Joseph, Turnhout, Province of Antwerp.—Tickings for beds and awnings. 233
- 92 La Lys Co., Ghent.—Jute and linen thread. 233
- 93 Van Damme Bros., Roulers, East Flanders.—Cloth. 233
- 94 Vande Wynckele Bros. & Alsborge, Ghent.—Tow and linen thread bleached, at every stage. 233
- 95 Wilford, William, Tamise, East Flanders.—Imperial extra flax, merchant and navy canvas; combed flax and thread for its manufacture. 233

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- 96 Hauzeur-Gerard, Son, Verviers.—Carded woolen thread. 233
- 99 Baras-Navaux, Verviers.—Cloth and woolen stuff. 235
- 100 Bettonville, Clement, Hodimont, near Verviers.—Cloth and woolen stuff. 235

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- 101 Biolley, François, & Son, Verviers.—Cloth and woolen stuff. 235
- 102 Biolley Bros. & Co., Juslenville, near Verviers.—Cloth and woolen stuff. 235
- 103 Chatten, M., & Co., Dison, near Verviers.—Cloth and woolen stuff. 235
- 104 Delhez Bros., Dison.—Cloth and woolen stuff. 235
- 105 Devosse-Blaise, Dison.—Cloth and woolen stuff. 235
- 106 Dolne, Lekeux, & Co., Dison.—Cloth and woolen stuff. 235
- 107 Domken Bros., Verviers.—Cloth and woolen stuff. 235
- 108 Dreze, H. & J., Dison.—Cloth and woolen stuff. 235
- 109 Franck Bros., Dison.—Cloth and woolen stuff. 235
- 110 Henriom, J. J., Dison.—Cloth and woolen stuff. 235
- 111 Herve, Fanchamps, Verviers.—Cloth and woolen stuff. 235
- 112 Lecloux, G. J., Dison.—Cloth and woolen stuff. 235
- 113 Lejeune-Vincent, H. J., Dison.—Cloth and woolen stuff. 235
- 114 Otivier, J. J., & Son, Verviers.—Cloth and woolen stuff. 235
- 115 Peltzer & Son, Verviers.—Cloth and woolen stuff, carded woolen thread. 235
- 116 Simpons, Iwan, Verviers.—Cloth and woolen stuff. 235
- 117 Tasté, J., Verviers.—Cloth and woolen stuff, carded woolen thread. 235
- 118 Wihl, M., & Co., Verviers.—Cloth and woolen stuff. 235
- 119 Jamme, Armand, Saint Hadelin, (Neisonvaux), near Verviers.—Carded woolen thread. 235
- 120 Begasse, Charles, Liège.—Felt for paper manufacture, rag-end fabrics, and woolen bed blankets. 237
- 121 Jacobs, Poelaert, & Co., Brussels.—Woolen bed blankets. 237
- 122 Rolin, H., Son, & Co., Saint Nicholas, East Flanders.—Tartan shawls, thin, light cloth, tweeds, waterproofs, lady cloth, fancy cloths, etc. 237
- 123 Braquenié Bros., Malines.—Malines tapestry. 239
- a Portrait of Rubens, panel from Gallait.
- b Portrait of Cousin, in Arabian costume.
- c Eight panels together, representing eight gods, from Olympus, with all their attributes, from Audran.
- d Full length painting—style Louis XVI.

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- 124 Fonteyn Bros., Lede, East Flanders.—Black silk goods. 245
- 125 Van Bellingen, Jos., Son, Antwerp.—Black silk cassimere, Antwerp silk and trimmings. 245
- 126 Van Bellingen, J. H., & Suremont, Max, Antwerp.—Antwerp black silk tissues. 245

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- 127 Dujardin Bros., Leuze (Hainaut).—Cotton and woolen hosiery. 250

- 128 Leynen-Hougaerts, J. A. H., Peel, Province of Limbourg.—Church vestments, chasuble, and various embroideries. 250
- 129a Cuvreur Sisters, Brussels.—Women's dresses. 250
- 129 Bouhon, François, Verviers.—Wooden and other shoes. 251
- 131 Frenay Bros., Reclenge-sur-Geer (Limbourg).—Braids and straw hats. 251
- 132 Level, Leon, Brussels.—Kid gloves. 251
- 133 Vandenbos-Poelman, G., Ghent.—Shoes. 252
- 134 Watrigant, Alphonse, Brussels.—Gentlemen's, ladies', and children's shoes. 251
- 135 Bagerem, René, Yprea.—Valenciennes lace. 252
- 136 Crommelinck, Courtrai.—Lace. 252
- 137 Dassonville, Courtrai.—Lace. 252
- 138 Declercq-Clement, Iseghem, East Flanders.—Common lace of twisted thread. 252
- 139 Des Mares, P. T., Laeken, near Brussels.—Lace. 252
- 140 Vergnies, O. De, & Sisters, Brussels.—Lace. 252
- 141 Duden Bros., Brussels.—Lace. 252
- 142 Everaert, Julie, & Sisters, Brussels.—White and black lace. 252
- 143 Bruyneel, senior, Grammont.—Black lace. 252
- 144 Groote, Vierendeel de, Grammont.—Black lace. 252
- 145 Everaert-Leclercq, Jules, Grammont.—Black lace. 252
- 146 Everaert Sisters, Grammont.—Black lace. 252
- 147 Ghys-Bruneel, Grammont.—Black lace. 252
- 148 Leclercq (widow), Grammont.—Black lace. 252
- 149 Saligo-Vandenberghé, Grammont.—Black lace. 252
- 150 Gillon-Steyaert, Courtrai.—Valenciennes lace. 252
- 151 Rectem, Jean, Brussels.—Gold embroidered picture. 252
- 152 Sacré, L., Brussels.—Lace. 252
- 153 Vandezande-Goemaere, Courtrai.—Valenciennes lace. 252
- 154 Verdé, Delisle Bros., & Co. (India Co.), Brussels.—Lace. 252
- 156 Coryn, Jules, Ghent, East Flanders.—Chignons and wigs. 254
- 157 Gossiaux, Félicien, Wavre (Brabant).—Hair picture. 254
- 157a Graf, Emile, Son, Liège.—Trunk. 255

Paper, Blank Books, Stationery.

- 158 Vandamme, Pierre Jean, Brussels.—Proofs of steel engraving for stamping with colors, illuminated with gold and silver, chromograms, and coats of arms. 258
- 159 Braff, Pfeffer, & Co., Ghent.—Raw material for the manufacture of paper, worked and cleaned rags, and old paper. 259

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- 160 De Mesmaecker, Fr., Brussels.—Samples of bindery work. 261
- 161 De Tournay-Catala, Brussels.—Printing, writing, and wrapping paper, and pasteboard. 259
- 162 Poissonnier, Jean Baptiste, Brussels.—Cases for jewelers, confectioners, druggists, etc.; card of samples. 262
- 163 Daye, F., & Co., Scharbeek, near Brussels.—Pressed leather, pasteboard made from Cordoue and Malines old hides. 264

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- 164 Fusnot, Charles, & Co., Cureghem, near Brussels.—Cartridges for weapons of every description. 265
- 165 Heuse, Ernest, Nessenvaux, near Liège.—Gun-barrels. 265
- 166 Maillet & Heuse, Fraipont (Liège).—Gun-barrels for warfare and export. 265
- 167 Bayet Bros., Liège.—Fine weapons. 269
- 168 Neumann Bros., Liège.—Double-barreled hunting guns. 269
- 169 Tambeur, Michel, Liège.—Hunting weapons. 269

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- 170 Depuy, Barthélémy, Brussels.—Pharmaceutical preparations, pamphlets on toxicology, pharmacy, and hygiene. 272
- 173 Guillery, Hippolyte, Brussels.—Sanitary report of the battle-field at Sedan in 1870; apparatus for the rapid dressing of wounds on the battle-field, etc., and for the treatment of limb fractures. 276
- 174 Hermant, Emile, Bruges.—Treatise on flying ambulances, model of ambulance bags adopted by the Belgian government, memoir of the military physician. 276
- 174a Buys, L., Brussels.—Car for the transport of the sick and wounded. 278

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 175 Lambert, A. de, Liège.—Files for watchmakers and jewelers. 280
- 175a Jean, Emile de, Brussels.—Collection of iron and tools for horse-shoeing. 280
- 176 Constant, Emile, Monceau-sur-Sambre, near Charleroi.—Cheese-vat bolts, clamps for rails, rivets, tinkers' ware. 284
- 177 Demanet, Albert, Gosselies (Hainaut).—Forged nails. 284
- 178 Fœndu, Jean Baptiste, Brussels.—Locksmiths' work, locks for vehicles, carriages, and railway cars; nickel ware used in construction. 284
- 179 Hoorickx, Guillaume, Brussels.—Two large chests—one representing an old-fashioned Flemish trunk, the other the present style. 284
- 180 Nicaise, Charles, Louvière (Hainaut).—Locomotive and other bolts, screws for locomotives, screw nuts, rivets, clamps for rails, etc. 284

- 180a Fix, A. J., Brussels.—Nails, rivets, etc. 284

- 181 Nicaise, Pierre & Nicolas, Marchenelle, near Charleroi.—Bolts, screw-nuts and rivets, spokes, and round-nose chisels, carriage tenders, clamps, etc. 284

- 182 Velings & Co., Chatelet, near Charleroi (Hainaut).—Iron wire, tacks, nails. 284

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- 183 Ryckere, Edouard de, senior, Iseghem, East Flanders.—Brushes and pencils. 286

Carriages, Vehicles, and Accessories.

- 184 Ruytter, Charles de, Ghent.—Carriages. 292
- 185 Van Aken, Louis, Anvers.—Carriages. 292

AGRICULTURE.

Agricultural Products.

- 1 Le Bailly-D'Inghuem, Viscount Arthur John, Villeneuve, Switzerland.—Cereals cultivated in a sandy soil. 620
- 2 Ameys Berte, Rodolph, Ghent.—Chicory, raw, in the pod, and manufactured. 623
- 5 Vandendaele-Rigot, Charles, Quévrain (Hainaut).—Ground mustard. 623
- 6 Delannoy, Nicholas, Tournai.—Chocolate. 623
- 6a Mottie, L., Brussels.—Tobacco and cigars. 623
- 7 Joveneau, Arthur, Tournai (Hainaut).—Powdered cocoa and chocolate; detail of chocolate manufacture. 623

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- 9 Bodart, Ed., Louvain (Brabant).—Sheepskins, white leather, morocco, salted roans. 652
- 10 Baugniet, T., & Co., Brussels.—Crystallized blood. 652
- 11 Lebermuth, J., & Co., Brussels.—Waxed leather and goat skins. 652
- 12 Ocreman, L., & Witdoeck, E., Mechlin, province of Antwerp.—Varnished skins. 652
- 13 Schmits, F. A., & Co., Koekelberg, near Brussels.—Skins for hats; manufactured morocco leather. 652
- 15 Versé-Speimans, Brichot, Ant., & Co., Brussels.—Curried leather. 652
- 17 Remy & Co., Louvain (Brabant).—Starch and similar products. 658
- 20 Vandendaele-Rigot, Ch., Quévrain (Hainaut).
 a Pear, apple, and beet-root syrups. 659
 b Vinegar. 660
- 21 Charlier, John Baptist, Ghent.—Beer. 660
- 22 De Beukelaer, F. X., Antwerp.—Antwerp elixir, hygienic cordial. 660
- 23 Melkior, P. J., Brussels.—Liquors. 660

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24 Schaftin, Pierry & Co., Spa.—Cordial, mineral waters, etc. 660

25 Schmidt, Emile, Schaerbeck, near Brussels.—Belgian bitters, cordial. 660

27 Bergh, van den, & Co., Antwerp.—Gin made from fine grains. 660

29 Wauters-de-Busscher, Mechlin, Province of Antwerp.—Cordials. 660

30 Damman, Edm., Borgerhout, near Antwerp.—Ship biscuit. 661

31 Couvreur Sisters, Brussels.—Confectionaries. 661

Textile Substances of Vegetable or Animal Origin.

32 Leclercq, Henry, Courtrai.—Flax. 666

33 Tauler-Bottelier, Charles, Bruges, East Flanders.—Oakum, flax. 666

35 Müllender, S., Verviers.—Flocks of wool and shearings. 667

36 Delmotte, Hippolitus, Ghent.—White bristles. 669

Machines, Implements, and Processes of Manufacture.

37 Dassonville de Saint-Hubert, L.—Namur.—Stones for grinding grain, cements, etc. 674

38 Vandendaele, Rigot, Charles, Quievrain (Hainault).—Steam machine for manufacturing chicory. 674

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-43.

NETHERLANDS.

(North of Main Aisle, Columns 60 to 65.)

Chemicals, Ceramics, Furniture, Woven Goods, Silk.

Chemical Manufactures.

- 1 Matthes, W. E., Amsterdam.—Sulphate of ammonia. 200
- 2 Gorter, D. & S., Sneek.—Soap. 201
- 3 Willems, P. J., Schiedam.—Oils. 201
- 4 Sauders & Co., Leyden.—Soaps. 201
- 5 Henny, C. O., Deventer.—Glue. 202
- 6 Van Calker, P. W., Utrecht.—Glue. 202
- 7 Verrocy & Van Heusde, Tiel.—Dyes, turpentine, inks, wax, colors, salves. 202
- 8 Grootes, M., Westzaan.—Blueing. 202
- 9 Leur, W., Schooten, near Haarlem.—Red lead made from iron ore. 202
- 10 Mills, M. A.—Inks. 202
- 11 Vriesendorp, H. M., Dordrecht.—Oils and varnish. 202
- 12 Lousbergh, V., Gravenhage.—Colors. 202
- 13 Van den Bergh, N. L. J., Arnhem.—Cologne. 203

Ceramics—Pottery, Porcelain, Glass, etc.

- 14 Van Bergen, A. H., Heiligerlee, Province of Groningen.—Stone and drain tiles. 206
- 15 Van Henkelom, H. C., Utrecht.—Building stone. 206
- 17 Koolemans-Beijnen, C. G. L., Willeskop.—Architectural pottery. 206
- 18 Goedwaagen, P., Gouda.—Chemical stoneware and stoves. 207
- 19 Fontein, R., Franeker.—Roofing tiles. 208
- 20 Ravesteijn, H. F., Westraven.—Painted wall stone. 208
- 21 Bouvy, J. J. B. J., Dordrecht.—Glassware. 214

Furniture and Objects of General Use in Construction and in Dwellings.

- 22 Nooijen, L. J., Rotterdam.—Furniture and fancy articles. 217
- 23 Van Vliet, W. F., Gravenhage.—Chairs. 217
- 24 Lowman, J., Zwolle.—Folding screen. 217
- 25 Van der Lugt, Gravenhage.—Furniture and fancy articles. 217
- 26 Lommen, C. H., Roermond.—Painted and cut glass. 219
- 27 Grolman, C. W., Utrecht.—Picture frames. 220
- 28 Batenburg & Co., Rotterdam.—Lamps. 223
- 29 Cool, G. Ths., Amsterdam.—Manicels. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 31 Director of Prison, Utrecht.—Matting and rugs. 229
- 32 Ter Horst, J. H., Ryssen.—Jute matting. 229
- 33 Arntzenius, Jannink, & Co., Goor.—Fish nets and yarn. 230
- 34 Hilversumache Spinning & Weaving Manufactory, Amsterdam.—Spun and woven cotton goods. 230
- 35 Planteijdt, L., Krommenie.—Thread cloth and canvas. 230
- 36 Maassen Zonen, A. E., Scheveningen.—Fish nets. 230
- 37 Bottenheim, D. & S., Amsterdam.—Yarns. 230
- 38 Stork, C. F., Hengeloo.—Colored woven goods. 231
- 39 Swinkels, W., Helmond.—Yarns. 231
- 40 Veltman, J. A., jr., Amsterdam.—Covers and scarfs. 232
- 41 Veetman, J. A., Amsterdam.—Scarfs. 232
- 42 Elias, J., Strijp.—Table cloths, napkins, and dress goods. 233
- 43 Nieuwenhuizen & Van Stratum, Geldrop.—Towels, napkins, and table cloths. 233

Woven and Felted Goods of Wool, etc.

- 44 Tilburg Woolen Manufacturing Co.—Flannels, opera cloaks, and fancy goods. 236
- 45 Zaalberg, J., Leyden.—Woolen covers. 237
- 46 De Lange, A. G., Delft.—Imitation Smyrna rugs. 239
- 47 Garjeanne, A. G., Delft.—Imitation Smyrna carpets. 239
- 48 Royal Carpet Manufactory, Deventer.—Deventer hangings. 239
- 49 Prins, M., Deventer.—Artificial wool and cowhair carpets. 239
- 50 Van Leer, B., Amersfoort.—Hangings. 239
- 51 Veelo, P. J., Gravenhage.—Sofa cloths. 241

Silk and Silk Fabrics.

- 52 Travaglino, P. J. & W. J. P., Haarlem.—Silks. 244

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 54 Wienbelt, W., Deventer.—Boots. 251
- 55 Costermans, C., jr., Gravenhage.—Trunks, satchels, and bags. 255

Stationery, Weapons, Medical Appliances, Hardware.

Paper, Blank Books, and Stationery.

- 56 Loeber, G., Amsterdam.—Stationery. 258
 57 Abrahams Bros., Middleburg.—Blank books. 261
 58 Simons, Ph., Gravenhage.—Bindings for maps, etc. 261
 59 Cramer, H. G. D., Ootmarsum.—Pasteboard. 262
 60 Van der Burgh, M., Schiedam.—Imitations of marble and wood. 264
 61 Van der Burgh, A. R. & P., Rotterdam.—Imitations of marble and wood. 264
 62 Rijperman, C. J. F., Velsen.—Wood painting. 264
 63 Dobbe, J. P., Gravenhage.—Wood and marble painting. 264
 64 Kerkhoven, R., Utrecht.—Wood and marble painting. 264

Weapons, etc.

- 65 Government Arm Manufactory, Delft.—Army rifle. 265
 66 Beton, J. P. de, Delft.—Breechloading rifle. 265

Medicine, Surgery, Prothesis.

- 67 Van de Loo, J. P. H., Venlo.—Plaster and bandages. 276
 68 Schokking, J. A. J., Amsterdam.—Conical tube for injections. 276
 70 Krol, W., Kampen.—Plasters and bandages. 276
 71 Mathijssen, A., Budel.—Plaster and bandages. 276
 73 Gori, M. W. C., Amsterdam.—Water and land conveyances for sick and wounded. 278
 74 Committee on Sick & Wounded Soldiers.—Work of the "Red Cross." 278

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 75 Erdman-Schmidt, J. D., Helmond.—Cast engraving plates. 280
 77 Enthoven, H. S., Zalt-Bommel.—Tinned iron kitchen utensils. 284
 78 Van Heukelom, H. C., Utrecht.—Machine screws. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

- 79 Reus, N., Pan, Dordrecht.—House and ship brushes. 286

NETHERLANDS EAST INDIAN COLONIES.

COLLECTIVE EXHIBIT.

Minerals, Manufactures.

Minerals, Ores, Building Stones, and Mining Products.

- 1 Netherlands Commission.
 a Gold, quicksilver, lead, and hematite iron ores; sulphur, feldspar, quartz, porphyry, trachyte, obsidian, garnet rocks, talc, flinty schist. 100
 b Coal. 101
 c Marble, granite, sandstone, syenite, diorite. 102
 d Limestone. 103
 e Clays, chalk bamboo. 104

Metallurgical Products.

- f Gold, from Soepayang. 110
 g Block tin. 113

Chemical Manufactures.

- h Nutmeg soaps. 201
 i Indigo. 202

Ceramics—Pottery, Porcelain, etc.

- j Water jug. 210

Furniture and Objects of General Use in Construction and in Dwellings.

- k Table, benches, rocking chairs, footstools. 217

Yarns and Woven Goods of Vegetable or Mineral Materials.

- l Mats, fabric of beaten bark. 229
 m Native cotton thread. 230
 n Native calico. 232

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- o Native garments of silk, cotton, etc. 230
 p Native caps, headkerchiefs, plaited hats, and Chinese slippers. 231

Manufactures, Agricultural Products.

- Lace, silk embroideries, embroidered handkerchiefs, etc. 252
- Silver filigree necklace, brooches, earrings, and bracelets. 253
- Artificial flowers, lacquered boxes, cases, fruits, etc.; nutmeg-tree made of leathers; flower baskets, cigar cases, vases, box, native boat and sedan chair made of cloves, book mark, tortoiseshell covers, models of Malay dwelling, chapel, rice barns, baskets, tea-set of silver filigree work, etc. 254

Weapons, etc.

- Native weapons, small models of inland arms. 265
- East Indian weapons, creeses, swords, knives, sabres, head-choppers, blow pipes for arrows, arrows, and shields. (loaned by His Majesty the King of the Netherlands.) 265

Medicine, Surgery, Prothesis.

- Alkaloids from cinchona bark, quinine, quinine, quinidine, cinchonine, cinchonidine, and cinchona powder; gum damar, catechu. 272

Hardware, Edge Tools, Cutlery, Metallic Products.

- Small models of inland tools. 280
- Rice knife. 281

Fabrics of Vegetable, Animal, or Mineral Materials.

- Ropes made of fibres of native trees and plants. 287
- Baskets, lacquered wooden box and trays. 289

Arboriculture and Forest Products.

- Cotton reels; East Indian loom; trunks, roots, barks, etc., of various species of the cinchona tree; collection of native woods; leaves, fruit, and pulp of the vegetable tallow tree; samples of bamboo. 600
- Ebony, sapan, and fustic woods. 601
- Gutta-percha, gutta-gitang, gutta-toesoe, India-rubber, agar-agar, gum benjamin, camphor, dragon's blood, vegetable talc, etc. 603

- Wild nuts, binamoe, langa bidjan, leodoeri flue seeds, sapo ranto, fruit, preserved wild nutmegs, etc. 605

Agricultural Products.

- Rices, hulled, unhulled, and in the stalk; millet, dragon wheat. 620
- Bienkoero and tarok roots. 622
- Coffees, teas, cocoa, nutmegs, white and black peppers, mace, cloves, tobacco. 623

Land Animals.

- Birds of Paradise.

Marine Animals, Fish Culture and Apparatus.

- Tripang fish. 641
- Tortoises. 643
- Mother-of-pearl shells. 645

Animal and Vegetable Products.

- Edible birds' nests. 650
- Tiger skins. 652
- Wax. 654
- Preserved victuals. 656
- Arrow-root, sante, ketella, red obi, tales, aren, cassava, and potato flours. 657
- Sago. 658
- Sugars. 659
- Arrack. 660
- Kajoe-poeti, Macassar, and Tekawan oils. 662

Textile Substances of Vegetable or Animal Origin.

- Kapok (cotton), cotton. 665
- Ramie flax, leaves, etc., gaham; fibrous materials from trees and plants; rattan, samanboe pipit, and samanboe besar reeds. 666
- Imitation clove-tree. 709
- Bernelot, Moens, J. C.—Herbarium exhibiting the cinchona cultivation in Java. 721
- Noordendorp, J., Amsterdam.—Photographs of the government cinchona establishments, and the Bouda Temple at Doro Bodor. 437

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

DENMARK.

(South of Nave, Columns 11 to 13.)

Manufactures, Education and Science.

Chemical Manufactures.

- 1 Aalborg Chemical Works, Aalborg.—Bicarbonate and carbonate of soda. 200
- 2 Holmblad, L. P., Copenhagen.—Stearine candles. 201
- 3 Goldberg, C. Hoegh, Copenhagen.—Varnish, and wood polished with it. 202
- 4 Hansen, C., Copenhagen.—Cheese rennet extract and coloring fluid; butter coloring. 202
- 5 Meyer & Henckel, Copenhagen.—Butter and cheese coloring, cheese rennet extract, varnishes. 202
- 6 Riise, A. H., St. Thomas, West Indies.—Double-distilled bay spirit and oil of bay leaves. 203
- 7 Odense Match Factory, Odense.—Matches. 204

Ceramics—Pottery, Porcelain, Glass, etc.

- 8 Hesse, Georg W., Copenhagen.—Terra-cotta vases, jugs, etc. 206
- 9 Ipsen's, P., widow, Copenhagen.—Terra-cotta vases, tazas, figures, etc. 206
- 10 Wendrich & Son, Copenhagen.—Terra-cotta bas-reliefs, bowls, vases, etc. 206
- 11 Royal Porcelain Manufactory, Copenhagen.—Biscuit bas-reliefs after Thorwaldsen, exhibited by the Commissioner. 212
- 12 Argentine Manufactory, Copenhagen.—Porcelain covered with copper, silver, and gold. 213

Furniture and Objects of General Use in Construction and in Dwellings.

- 13 Hansen, C. B., Copenhagen.—Furniture. 217
- 14 Meidal, F., Copenhagen.—Fire-proof safes. 217
- 15 Christesen, V., Copenhagen.—Silverware; large table ornament of silver, representing Art, Science, and Industry; tea and coffee sets, etc. 218
- 16 Stenstrup, Copenhagen.—Sign painting. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 17 Ramming, Th., Aarhus.—Dyed linen fabrics. 233

Woven and Felted Goods of Wool and Mixtures of Wool.

- 18 Müller, H., Faroe Islands.—Woolen goods. 235

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 19 Möller, C., Copenhagen.—Water-proof oil clothing. 250
- 19a Sorensen, C. P., Copenhagen.—Hand-sewed black coat, waistcoat, and pantaloons. 250
- 20 Larsen, N. F., Copenhagen.—Gloves. 251
- 21 Christesen, V., Copenhagen.—Jewelry and ornaments. 253
- 22 Assam, H. M., Odense.—Tobacco pipes, etc. 254
- 23 Ovre, Mrs., Copenhagen.—Artificial Sowers. 254

Paper, Blank Books, Stationery.

- 24 Holmblad, L. P., Copenhagen.—Playing cards. 262
- 25 Hansen, Carl, & Co., Ebeltoft.—Impregnated pasteboard. 262

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 25a Engelbrecht, C., Copenhagen.—Pair of water-skates. 281

Educational Systems, Methods, and Libraries.

- 1 Hveiseel, G., Randers.—School maps. 300
- 2 Simonsen, C., Copenhagen.—"Punch," an illustrated paper. 306
- 3 Steenberg, A., Copenhagen.—"Industridenden," an industrial paper. 306

Institutions and Organizations.

- 4 Browning, Georg, Copenhagen.—Ethnographical collection, products, minerals, etc., from Iceland and Faroe Islands. 312
- 5 Müller, H., Faroe Islands.—Collection of birds, feathers, eggs, etc. 312
- 6 Harboe, C., Copenhagen.—Ethnographical collection: products, minerals, etc., from Greenland. 312

Science, Art, Machinery, Agricultural Products.

Scientific and Philosophical Instruments and Methods.

- 7 Bie, C., Aalborg.—Arithmometer. 321
 8 Ferslew, C., & Co., Copenhagen.—Register for cars, etc. 323

Engineering, Architecture, Maps, etc.

- 9 The Royal Staff, Copenhagen.—Topographical maps. 335
 10 Steen, C., & Son, Copenhagen.—Geographical, historical, meteorological, and other maps. 335

Sculpture.

- 10a Fjeldskov, V., Copenhagen.—Carving in wood, statuettes, medals, etc. 405
 a Sailor.
 b Viking.
 c Crucifix.
 d Peasant.
 e Children.
 f Friends.
 g Spring.
 h Thorvaldsen.
 i Goethe.
 j Angelo.
 k H. C. Andersen.
 l Oersted.

Painting.

- 10b Ferslew, C., & Co., Copenhagen.—Lithographs. 423

Industrial and Architectural Designs, etc.

- 10c Hetsch, Chr., Copenhagen.—Architectural designs. 441

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 1 Ambrosiussen, O. P., Copenhagen.—Model of a scaffold. 503

Machines and Implements of Spinning, Weaving, Felting, and Paper-making.

- 2 Tullesen, P., Lyngby.—Hair-braiding machine. 524

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

- 3 Henriksen, H., Copenhagen.—Sewing machine. 531

Machines for Printing, Making Books, Paper-working, etc.

- 4 Hansen, R. Malling, Copenhagen.—The tachygraph, operated by electricity, and the type-writing ball, operated by hand. 542

Motors, Power Generators, etc.

- 5 Godfredsen, R., Copenhagen.—Belt-ing, etc., for transmission of power. 553

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-35.

Arboriculture and Forest Products.

- 1 Halkier, P. A., Copenhagen.—Timber, planks, boards, rough and finished, for buildings, etc. 505

Agricultural Products.

- 2 Wendt, Frantz, Roeskilde.—Rye, winter and spring wheat, barley, and oats. 622

Animal and Vegetable Products.

- 3 Danish Preserved Butter Co., Aarhus.—Canned butter for export. 651
 4 Heymann, P. W., Copenhagen.—Preserved butter for export, also butter which was at the Vienna Exposition in 1873. 651
 5 Copenhagen Leather Manufactory, Copenhagen.—Consolidated leather soles, heels, sheets, etc. 652
 6 Pork Packing Co., Copenhagen.—Lard packed in bladder. 652
 7 Erikson, C., Lyngby.
 a Honey and wax. 654
 b Mead. 660
 8 Müller, P. A. E., Copenhagen.—Honey and wax. 654
 9 Herreborg, Otto, Copenhagen.—Preserved fruit, vegetables, jellies, etc. 656
 10 Brøndum, A., Copenhagen.—Corn brandy and table liquor. 660
 11 Aalborg Syrup & Spirit Factory, Aalborg.—Table liquor and spirit. 660
 12 Anthony, F., Copenhagen.—Brandies and liquors. 660
 13 Bech, C. A., Copenhagen.—Liquors, etc. 662
 14 Gottschalk, I. C., Holbek.—Essences. 660
 15 Meering, Peter F., Copenhagen.—Cherry cordial. 660
 17 Lorenzen, L., Aarhus.—Bitter cordial. 660
 18 Odin Distillery, Randers.—Corn brandy flavored with caraway seeds; table liquor, and rectified spirit. 660
 19 Sabro, I. C., Randers.—Bitters, etc. 660
 19a Farch, J., & Sons, Nibe.—Alcohol, raw spirits, and brandy. 660
 20 Schucani & Wegmann, Copenhagen.—Liquors, bitters, etc. 660
 21 Svanholm Brewery, Copenhagen.—Beer for export. 660
 22 Ramsing, T., Aarhus.—Chocolate 661

Textile Substances of Vegetable or Animal Origin.

- 23 Müller, H., Faroe Islands.—Wool. 667

Machines, Implements, and Processes of Manufacture.

- 24 Schültz, Thurebyholm.—Model of milk cooler. 675

Agricultural Engineering and Administration.

- 25 Aalborg Chemical Works, Aalborg.—Artificial bone manure. 681

SWEDEN.

(North of Nave, Columns 6 to 11.)

Chemicals, Ceramics, Furniture.

Chemical Manufactures.

- 1 Aseptin Amykos Stock Co.
a Upsala Aseptin, for preservation of provisions and animal materials. 202
b Upsala amykos, used as a cosmetic. 203
- 2 Bengtsson, B., Astra Torp, Trälleborg.—Chemicals. 200
- 4 Friestedt, A. W., Stockholm.—Chemicals. 200
- 5 Gullberg Stock Co. (limited), Göteborg.—Sulphuric acid. 200
- 6 Liljeholmen Stearine Manufacturing Stock Co., Stockholm.—Stearine candles, oleine, glycerine, and stearine. 201
- 7 Sjöberg, A. P., Malmö.—Soaps. 201
- 8 Werner, C. O., Stockholm.—Bone oil. 201
- 14 Strandberg, Fr. Aug., Jönköping.—Varnishes, ink. 202
- 17 Granholm, J. P., Stockholm.—Rectified amykos. 203
- 18 Pauli F., Stockholm.—Essences, perfumery, cosmetics. 203
- 21 New Match Manufacturing Co. (limited), Stockholm.—Safety matches. 204
- 22 Berg, Gottfried Warby, Stockholm.—Gunpowder. 204
- 23 Blombacks Stock Co., Molkom.—Safety matches and their raw materials. 204
- 24 Gesta Match Manufactory, Stockholm.—Paraffined safety matches. 204
- 25 Holmberg, Eric, Södertelje.—Safety matches. 204
- 26 Jönköping Match Manufacturing Co. (limited), Jönköping.—Safety matches. 204
- 27 Kreuger, P. E., & Jennings, Kalmar.—Safety matches. 204
- 28 Elibo Göteborg Match Factory, Göteborg.—Matches. 204
- 29 Lindahl, J. F., Kalmar.—Safety matches. 204
- 30 Lover Manufacturing Co. (limited), Kalmar.—Matches. 204
- 31 Norrköping Match Manufacturing Co. (limited), Norrköping.—Safety matches and appurtenances. 204
- 32 Stregnas Match Manufacturing Co. (limited), Stregnäs.—Safety matches. 204
- 33 Phoenix Match Manufacturing Co. (limited), Malmö.—Matches. 204
- 34 Vulcan Match Manufacturing Co. (limited), Göteborg.—Matches. 204

- 35 Westervik Match Factory, Westervik.—Matches. 204
- 36 Wisby Match Manufacturing Co. (limited), Wisby.—Matches. 204
- 37 Ystad Match Manufacturing Co. (limited), Ystad.—Safety matches. 204

Ceramics—Pottery, Porcelain, Glass, etc.

- 39 Helsingborgs Iron and Stone Ware Manufacturing Co. (limited), Helsingborg.—Salt glazed clay goods. 207
- 40 Höganäs Coal Mining Co., Höganäs.
a Fire clay goods. 207
b Tiles for pavements. 208
- 42 Gustafsbergs Manufacturing Co., Stockholm.
a Architectural pottery. 206
b Faience. 210
c Biscuit ware and parian. 212
d Porcelain and Argemine. 213
- 43 Rörstrands Stock Co. (limited), Stockholm.
a Faience. 210
b Majolica and palissy ware. 211
c Biscuit ware and parian. 212
d Porcelain. 213
- 46 Malmö Porcelain Manufacturing Co., Malmö.—Porcelain for table use. 213
- 47 Bruzewitz, Fr., Limmared.—Glassware. 215
- 48 Reymyre Glass Factory (limited), Keymyra.—Glassware. 215

Furniture and Objects of General Use in Construction and in Dwellings.

- 49 Backman, J. F., Stockholm.—Safe. 217
- 50 Glömssta Manufacturing Co. (limited), Huddinge.—Cottage furniture. 217
- 51 Lastbom, Iven, Stockholm.—Cupboard of birchwood. 217
- 52 Peterson, C. E., Stockholm.
a Table. 217
b Frame. 220
- 53 Rambach, C., Stockholm.—Chair. 217
- 54 Rusch, P. O., Göteborg.—Japanned furniture. 217
- 54a Holm, F. F. W., Stockholm.—Furniture. 217
- 55 Sandberg, A. Cook, Stockholm.—Writing chair. 217
- 56 Wahlström, S. Fr., Stockholm.—Willow furniture. 217

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Furniture, Woven Goods, Clothing, Stationery.

- 57 Osterberg, C. G., Jäder, Eskilstuna.—
School furniture. 217
- 58 Bruzewitz, Fr., Limnared.—Table
glass. 218
- 59 Goldamiths' Stock Co. (limited),
Stockholm.—Silver tankard. 218
- 60 Gustafsberg Manufacturing Co.,
Stockholm.—Table china. 218
- 61 Reymyre Glass Factory (limited),
Reymyra.—Table glass. 218
- 62 Rörstrand Stock Co. (limited), Stock-
holm.
a Table china. 218
b Stoves. 222
- 64 Bolinders, J. & C. G., Machine Co.
(limited), Stockholm.
a Heating apparatus. 222
b Stove for smoothing-irons. 225
- 65 Hedengren, A. F., & Son, Eskilstuna.
—Stove sets. 222
- 66 Eriksson, G., Eskilstuna.—Brass
doors for stoves. 222
- 68 Moberg Machine Co., Stockholm.—
Range. 222
- 73 Elfving, C. E., Stockholm.—Appa-
ratus for cutting lamp wicks. 223
- 74 Kuntze & Co., Stockholm.—Water
filters, refrigerators. 224
- 74a Kallinge Iron Works, Ronneby.—
Kitchen utensils of iron and steel sheets.
224
- 75 Lafquist, J. A., Eskilstuna.—
Smoothing-irons. 225
- 76 Björk, J. O., Eskilstuna.—Hardware
of mottified iron. 227
- 77 Dickson, James, & Co., Sandarne,
—Woodwork for buildings. 227
- 78 Essen, Baron H. H. von, Tidaholm.
—Woodwork for buildings. 227
- 79 Hedlund, Joh., Eskilstuna.—Metal
work for buildings. 227
- 82 Wengström, J. O., Stockholm.—
Manufactured parts of buildings. 227

Yarns and Woven Goods of Vegetable
or Mineral Materials.

- 83 Anderson, J., Kjärtingagårde,
Gnosjö.—Wire and sieve cloth. 228
- 84 Berg, J. Th., Nälå, Floda.
a Cotton yarns. 230
b Dyed cotton yarn. 231
- 86 Malmö Woolen Manufacturing Co.
(limited), Malmö.
a Cotton yarns. 230
b Dyed cotton fabrics. 231
- 87 Rosenlunds Spinning Co. (limited),
Göteborg.—Cotton yarns and fabrics. 230
- 89 Johansson & Carlander, Göteborg.—
Calicoes. 232
- 90 Stenborg's, G., Widow, Jönköping.—
Linen fabrics. 233

Woven and Felted Goods of Wool, etc.

- 91 Bergsbo Stock Co., Norrköping.—
Card-wool fabrics. 235
- 92 Drag Stock Co. (limited), Norrkö-
ping.—Card-wool fabrics. 235
- 93 Landskrona Manufacturing Co.,
Landskrona.—Card-wool fabrics. 235

- 94 Malmö Woolen Manufacturing Co.
(limited), Malmö.—Card-wool fabrics. 235
- 95 Stockholm Woolen Manufactur-
ing Co. (limited), Stockholm.—Woven and
felted goods of wool. 235

Silk and Silk Fabrics.

- 96 Almgren, K. A., Stockholm.—Plain
woven silks. 245

Clothing, Jewelry, and Ornaments:
Traveling Equipments.

- 98 Ek, J. A., Stockholm.—Military
equipments. 250
- 99 Fernlund, E. F., Stockholm.—Mil-
itary and civil clothing. 250
- 100 Heurlin, G. U., & Co., Stockholm.
—Military clothing. 250
- 101 Royal War Office, Department of
Investment, Stockholm.—Complete equip-
ment of foot and mounted soldiers; spec-
imens of cloth, linen, etc. 250
- 103 Swedmark, G., Malmö.
a Leather jackets. 250
b Gloves. 251
- 104 Wallgren, A. R., Stockholm.—Mil-
itary clothing. 250
- 105 Forsell, David, & Co., Stockholm.
a Hats and caps. 251
b Furs. 256
- 106 Jacobson & Anderson, Malmö.—
Gloves. 251
- 107 Svanberg, C. E., Jönköping.—
Shoes. 251
- 109 Tornberg, Olof, Göteborg.—Boots
and shoes. 251
- 110 Odberg, C. R., Stockholm.—Hunt-
ing boots. 251
- 111 Peterson, C. E., Stockholm.—
Embroidered portrait of Washington. 252
- 112 Klintberg, J. W., & Co., Wisby.—
Jewelry made of petrifications. 253
- 113 Anderson, J., Kjärtingagårde,
Gnosjö.—Pins. 254
- 114 Berg, F. J., Göteborg.—Wigs,
braids, and chignons. 254
- 114a Clarborg, T. A., Stockholm.—
Jewel case. 254
- 116 Bergström, P. N., Stockholm.—
Furs. 256
- 118 Royal Swedish Commission,
Stockholm.—Life-size figures, dressed in
national costume. 257

Paper, Blank Books, Stationery.

- 119 Berggren, A. N., Stockholm.—Pen-
holders of cork. 258
- 120 Brunell, J. E., Stockholm.—Pen-
holders of common reed. 258
- 121 Klintberg, J. W., & Co., Wisby.—
Letter-presses of petrifications. 258
- 122 Kullgren's, C. A., Widow, Udde-
valla.—Letter-presses of polished gran-
ite. 258
- 128 Nordström, M. S., Stockholm.—
Stamps for marking on linen or paper. 258
- 126 Munktel, J. H., Grycksbo, Falun.
a Filtering paper. 259
b Wood pulp. 260

Paper, Weapons, Medical Appliances, Hardware.

- 127 Nynäs Pasteboard Factory, Nynäs, Mävada.—Pasteboard. 260
- 129 Lewenhaupt, Count, Sten, Wermbohl, Katrineholm.—Wood pulp, chemically prepared. 260
- 130 Malmö Wood Pulp Manufacturing Co. (limited), Delaryd, Elmhult.—Wood pulp, chemically prepared. 260
- 131 Munkedal Manufacturing Co. (limited), Uddevalla.
a Wrapping, bagging, and sketching paper. 260
b Building papers. 263
c Wall paper. 264
- 132 Munksjö Paper Factory, Jönköping.—Wrapping paper. 260
- 133 Rosendahl Manufacturing Co., Göteborg.—Paper pulp of wood and straw, paper. 260
- 134 Wargöns Stock Co., Rannum.—Printing paper for newspapers. 260
- 135 Litografiska Stock Co., Norrköping.
a Blank books, sets of account books, billheads, etc. 261
b Playing cards. 262
- 136 Tidström, C. W., Stockholm.—Account books, portfolios. 261
- 137 Djupafora' Manufacturing Co. (limited), Konneby, Djupafora.—Pasteboard; building paper. 262
- 138 Köhler & Co., Malmö.—Playing cards. 262
- 140 Munksjö Paper Mill, Jönköping.—Building paper. 263
- 141 Edgren, Julius, Jönköping.—Wall paper. 264
- 142 Kaberg, C. A., Stockholm.—Wall paper. 264
- 143 Mineur, C. G., Stockholm.—Wall paper, imitation of leather, and ornaments of wood pulp. 264
- 145 Rosell, P. A., & Co., Jönköping.—Wall paper. 264

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- 146 Husqvarna Arms Manufacturing Co. (limited), Jönköping.
a Military small arms, muskets, and revolvers. 265
b Fire arms for sporting and hunting. 269
- 147 Royal War Office, Artillery Department, Stockholm.
a Military small arms from the royal factory at Carl Gustafs Stad. 265
b Field gun with carriage, ammunition carriage, field forge. 266
c Fortification ordnance with carriage and shots. 267
- 148 Motala Mechanical Works Co. (limited), Motala.—Hoops for guns. 266
- 149 Palmcrantz, Helge, Stockholm.—Mitrailleuse. 266
- 150 Ekman, Carl, Finspong, & De Maré, A., Ankararum.—Steel guns and shot. 267
- 151 Eskilstuna Iron Manufacturing Co. (limited), Eskilstuna.—Blades of swords, sabres, foils, and hunters' hangers. 268
- 152 Norrström, C. A. & C. H., Eskilstuna.—Hunting knives. 268

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- 154 Pittz, G., Stockholm.—Medicated gelatina. 272
- 155 Lamm, Axel, M., Stockholm.—Galvano-caustic apparatus, gynecological apparatus. 273
- 156 Royal War Office, Sanitary Department, Stockholm.—Surgical instruments for military use. 276
- 157 Stille, Alb., Stockholm.—Surgical instruments. 276
- 158 Zander, G., Stockholm.—Apparatus for mechanical gymnastics. 276

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 159 Eskilstuna Iron Manufacturing Co. (limited).—Screw plates and hinges. 280
- 160 Liberg, B. & O., Rosenfors.
a Edge tools. 280
b Cutlery. 281
- 161 New File Manufactory, Eskilstuna.—Files. 280
- 162 Öberg, C. O., & Co., Eskilstuna.—Files. 280
- 163 Fagersta Iron & Steel Works, Westanfors.
a Saws. 280
b Nails. 284
- 164 Uddeholm Stock Co. (limited), Råda.
a Hand tools. 280
b Springs and hardware. 284
- 165 Engström, Joh., Eskilstuna.—Razors. 281
- 166 Gustafson, G., Eskilstuna.—Knives. 281
- 167 Halling, A., Eskilstuna.—Knives. 281
- 168 Hjelström, Christoffer, Eskilstuna.—Razors, knives, and corkscrews. 281
- 169 Ståhlberg, L. F., Ståhlfors.—Cutlery. 281
- 170 Svalling, E. M., Eskilstuna.—Knives. 281
- 171 Söderén, F. W., Eskilstuna.—Knives. 281
- 172 Hedlund, Joh., Eskilstuna.—Locks. 284
- 173 Jernberg, S., Eskilstuna.—Latches. 284
- 174 Lafqvist, J. A., Eskilstuna.—Hinges. 284
- 175 Lagerbäck, H., Eskilstuna.—Locks. 284
- 176 Stenman, F. A., Eskilstuna.—Locks. 284
- 179 Strandberg, J., Eskilstuna.—Brass. 284
- 181 Walén, Joh., Eskilstuna.—Locks. 284
- 182 Johnson, A. & Co., Stockholm.—Cart springs. 284

Metal, Leather, Wooden Ware.

- 183 Kallinge Iron Works, Ronneby.—
Nails. 284
- 183a New Gellivara Co. (limited),
Luleå.—Nails. 284
- 184 Robson, Albert, Aspa, Askersund.
—Oak spikes. 284
- 185 Sundström, J. O., Charlottenberg.
—Nails. 284
- 187 Wiklund, W., Stockholm.—Brass
hardware. 284

Fabrics of Vegetable, Animal, or
Mineral Materials.

- 189 Tuxen, Louis von, Stockholm.—
Fabrics of patent leather. 285
- 190 Olsson, M., Arnäs, Lina.—Flower
stand, willow chair and basket. 289
- 191 Kallinge Iron Works, Ronneby.—
Galvanized iron vessels. 291
- 192 Karlskrona Galvanizing Stock Co.
(limited), Karlskrona.—Galvanized sheet
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Textiles, Ceramics, Woven Goods, Clothing.

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- 1 Bergen Gas Works, Bergen.—Sulphate of ammonia, raw and refined. 200
 - 1a Bergen's Commercial Association, Bergen.—Cod-liver oil. 201
 - 2 Borthen, J., Trondhjem.—Medical cod-liver oil. 201
 - 3 Hanssen, F., Aalesund.—Medical cod-liver oil. 201
 - 4 Devold, L. C., Aalesund.—Medical cod-liver oil. 201
 - 4a Henriksen, J. H., Tromsø.—Medical cod-liver oil. 201
 - 5 Jordan, C., Trondhjem.—Medical cod-liver oil. 201
 - 6 Møller, Peter, Christiania.—Cod-liver oil. 201
 - 6a Bordewick & Co., Lynsvor.—Medical cod-liver oil. 201
 - 7 Steen, Daniel, Christiania. 201
 - a Soaps. 201
 - a Essences, perfumery, pomades, cosmetics. 203
 - 8 Holmen's, G. R., Technical Works, Fuglesang, Christiania.—Writing ink, aseptic, diamond oil blacking, grease for leather. 202
 - 10 Rode, C. N., Forgrund.—Scandinavian ink, writing and copying, dark violet copying ink. 202
 - 11 Pettersen, Andr., Bergen.—Hair dressing and perfumery. 203
 - 12 Dons, Henrik, Christiania.—Matches from Bryn manufactory. 204
 - 16 Jølsens, H., Match Manufactory, Christiania.—Matches. 204
 - 17 Nittedals Match Manufactory, Christiania.—Safety and common matches. 204
- (For fish oil, see *Agricultural Catalogue*, page 67.)

Ceramics—Pottery, Porcelain, Glass, &c.

- 17a Havnens Works, Christiania.—Tiles and bricks. 206
- 18 Schwarzenhorn, Fr. von, Christiania.—Painted and decorated porcelain. 213
- 19 Hurdal, Biri, Hadeland & Høvik's Glass Works. 214
- a Window glass. 214
- b Bottles. 215
- c Glassware. 216
- 20 Bergen's Glass Works.—Floaters. 215

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- 21 Gram, Wm., Christiania. 217
- a Antique bedstead and cupboards. 217
- b Antique brass and copper dishes. 218
- c Candlesticks. 223
- 22 Holst, Chr., Head Steward to His Majesty the King, Christiania.—Buffet chairs, antique arm chairs, peasant chairs. 217
- 23 Klemetsen, Chr., Christiania.—The fittings of the Norwegian section. 217
- 24 Moestue, Thv., & Co., Christiania.—Iron safe. 217
- 25 Opsahl, P. J., Christiania.—Iron safes. 217
- 26 Drammen Foundry and Mechanical Works, Drammen.—Stoves. 222
- 29 Nord & Son, M. E., Christiania.—Refrigerator. 224
- 30 O. Jacobsen's Mechanical Works, Christiania.—Mechanical mangle. 225

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(For door-handles, see page 88.)

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 31 Christiania Sail Cloth Manufactory, Christiania.—Sail cloth, fishing yarus, etc. 230
- 32 Nydalens Company, Christiania.—Cottons, sail cloth, tissues, and yarns, fishing nets, etc. 230
- 34 Eche, J. D., & Son, Bergen.—Floor oil cloths and painted window blinds. 234

Woven and Felted Goods of Wool and Mixtures of Wool.

- 36 Pettersen, Gunerius, Christiania.—Textile domestic industry; valises. 238

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 40 Falkenberg, Johs., Christiania.—Ready-made linen. 250
- 41 Næss, H. S., Christiania.—Boots and shoes. 251
- 42 Nordahl, Petter N., Christiansand.—Boots. 251
- 43 Falck-Yster, Christiania.—Snow shoes. 251
- 44 Gram, Wm., Christiania. 251
- a Collection of antique and modern silver ornaments worn upon the person. 253
- b National costumes from Hardanger. 253

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-46.

Fancy Goods, Paper, Hardware, Carriages, Machinery.

- 45 Lie, P. A., Christiania.—Silver filigree work in Norwegian style. 253
- 45a Olsen, Th., Bergen.—Filigree silver ornaments. 253
- 46 Tostrup, J., Christiania.—Silver work; silver filigree work in specific Norwegian style. 253
- 49 Kittelsen, Jens, Christiania.—Valises. 255
- 50 Brandt, C., Bergen.—Furs, skins, etc. 256
- 51 Rustad, A. S., Drammen.—Collection of Norwegian furs. 256

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- 53 Haneborg, A. O., Christiania.
a Paper. 260
b Wood pulp for paper manufacturing. 263
- 54 Moestue, Thv., & Co., Christiania.
a Account books. 261
b Pasteboard boxes. 262
- 55 Christophersen, Chr., Christiania.—Wood pulp for paper manufacturing. 263
- 56 Frolich, F. H., & Son, Christiania.—Paper hangings and borders. 264

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.

- 57 Gram, William, Christiania.—Antique weapons. 268

Medicine, Surgery, Prothesis.

- 58 Ditten, H. S., Christiania.—Aperient tonic pills, tourist pharmacies. 272

Hardware, Edge Tools, Cutlery and Metallic Products.

- 58a Bennett, T.—Cutlery and carved goods. 281
- 59 Michelsen, John B., Bergen.
a Cutlery. 281
b Brass goods. 283
c Carvings in wood and walrus teeth. 403
- 59a Smith, William.—Knives with carved handles. 281
- 60 Blunck, C., Christiania.
a Metal hollow ware, cast iron ware. 283
b Pumps. 560
c Fire engines. 564
- 61 Krogstad Society, Drammen.—Nails and spikes, machine-made by hot and cold process. 284
- 61a Opsahl, P. J., Christiania.—Locks. 284

(For anchors, chains, and stoves, see page 80.)

For classes of exhibits, indicated by numbers at end of entries, see Classification; pp. 27-45.

Fabrics of Vegetable, Animal, or Mineral Materials.

- 65 Fredriksvorn Rope Manufactory, Fredriksvorn.—Cordage. 287
- 66 Kuhne, W., Christiania.—Basket ware. 289

Carriages, Vehicles, and Accessories.

- 67 Heffermehl, L., Drammen.
a Carriages (kariols). 290
b Racing sledge. 295
- 68 Sorensen & Klovstad, Christiania.—Carriages (kariols). 292
- 69 Christensen, Chr., Christiania.
a Kariol. 292
b Antique sleigh. 295
- 70 Falck-Yster, Christiania.—Fisherman's ice sledge. 295

Motors, Power Generators, etc.

- 71 Gjerdrum, Otto, Christiania.—Model of self-acting smoke-consuming apparatus for boilers. 550
- 72 Klem Hansen & Co., Trondhjem.—Belting. 553
- 73 Roed Works, near Sandesfjord.—Rotating steam-engine with boiler and feed-water heater. 554

Hydraulic and Pneumatic Apparatus.

- 74 Blunck, C., Christiania.
a Pumps. 560
b Fire-engines. 564

Aerial, Pneumatic, and Water Transportation.

- 75 Arents, Hjalmar, Christiania.—Models and drawings of iron ships. 594
- 76 Board of Commerce, Aalesund.—Models of fishing boats. 594
- 77 Brandt, J., Christiania.—Drawings and models of sailing vessels. 594
- 78 Brunchorst & Dekke, Bergen.—Models of sailing vessels. 594
- 79 Gran, Jens, Bergen.—Models of sailing vessels. 594
- 80 Hansen, Carl A., Forgrund.—Models and drawings of sailing vessels. 594
- 81 Museum of Bergen, Bergen.—Models of fishing boats. 594
- 82 Naval Establishment of Carl Johansvorn, Horten.—Models of boats. 594

ITALY.

(North of Nave, Columns 1 to 5.)

Chemicals.

Chemical Manufactures.

- | | |
|--|--|
| 1 Mineralogical Society of Naples.—
Sulphurous products. 200 | 26 Scuderi, Giuseppe, Catania.—Cream
of tartar, zamba. 200 |
| 2 Salinella, Baron Michele, Nicosia,
Catania.—Rock salt. 200 | 27 Rampazzini, Frederico, Milan.—
Sulphur and chemicals. 200 |
| 3 Musumeci, Gulli Gaetano, Catania.
—Liquorice. 200 | 28 Bollina, Arras Giuseppe, Sassari.—
Olive oil. 201 |
| 4 Giacomazzi, Favare Salvatore, Tra-
pani.—Sea salt. 200 | 29 Oneto, Agostino, & Co., Sampier-
darena, Genoa.—Soap. 201 |
| 6 Giacomazzi, Rocco, Trapani.—
Liquorice. 200 | 30 Agostini Della Seta, Count Alfredo,
Pisa.—Olive oil. 201 |
| 6 Martorana, Paladino S., Trapani.—
Sea salt. 200 | 31 Canani, Count Bartolomeo, Lucca.
—Olive oil. 201 |
| 7 Mazullo, Cav. Agostino, Mandanù,
Messina.—Rock salt. 200 | 32 Mingori, Vincenzo, Lucca.—Olive
oil. 201 |
| 8 Pirrone, Antonino, of Gaetano, Mes-
sina.—Liquorice. 200 | 33 Tellini, Vincenzo, Calci, Pisa.—Olive
oil. 201 |
| 9 Labonia, B. G., Naples.—Liquo-
rice. 200 | 34 Tellini, Dario, & Co., Cascina, Pisa.
—Olive oil soap. 201 |
| 10 Romano, Gaetano, Palermo.—
Salt. 200 | 35 Bonel, Casuccini Ottavio, Sienna.—
Olive oil. 201 |
| 11 Ferrino, Cesare, Turin. 200 | 36 Contucci, Eustachio, Montepu-
liano, Sienna.—Olive oil. 201 |
| 6 Nitrate. 200 | 37 Lanza Bros., Turin.—Stearine,
candles, soap. 201 |
| 6 Colors in powder and paste. 202 | 38 Rinaldo, Raffaele, Salerno.—Olive
oil. 201 |
| 12 Baroncelli, Baldassarre, Cinciano,
Sienna.—Bicarbonate of potassium and
sodium. 200 | 39 Guglielmini, Andrea, Salerno.—
Olive oil. 201 |
| 13 Borelli, Luigi, late Tommaso, Asti,
Alexandria.—Cream of tartar, acids. 200 | 40 Virgili, Angelo, Vacone, Perugia.
—Olive oil. 201 |
| 14 Reimandi, Giuseppe, Acqui, Alex-
andria.—Cream of tartar, tartaric
acid. 200 | 41 Rosselli Del Turco, Pier Francesco,
Florence.—Olive oil. 201 |
| 15 Gentili, Grassini, late Giuseppe, Pa-
dua.—Cream of tartar. 200 | 42 Capponi, Conti Bros., Florence.—
Olive oil. 201 |
| 16 Sbertoli, Giuseppe, late Domenico,
Genoa.—Carbonate of lead. 200 | 43 Alli Maccarani Claudio, Florence.—
Olive oil and paste of Zanza. 201 |
| 17 Candiani & Biffi, Milan.—Acids and
chemicals. 200 | 44 Corsini, Prince Tommaso, Florence.
—Olive oil. 201 |
| 18 Emmanuele, Francesco, Catania.—
Cream of tartar. 200 | 45 Merlini, Alfonso, & Enrico Bros.,
Terriciuola, Pisa.—Olive oil. 201 |
| 19 Grimaldi, Giovanni, Paterno, Sicily.
—Extract of liquorice. 200 | 46 Farinola, M. Paolo, Florence.—
Olive oil. 201 |
| 20 Pastore, Gio., late Filippo, Catania.
—Juice of liquorice. 200 | 47 Albergotti, Geo., & Agostino Bros.,
Arezzo.—Olive oil. 201 |
| 21 Grasso, Giuseppe, Catania.—Juice
of liquorice. 200 | 48 Rospigliosi, Prince Clemente, Lam-
povecchio, Florence.—Olive oil. 201 |
| 22 Catanzaro, Giuseppe, Termini, Pa-
lermo.—Liquorice paste. 200 | 49 Chamber of Commerce & Arts,
Sienna.—Olive oil. 201 |
| 23 Lancia di Brolo, Duke Federigo,
Palermo.—Sea salt. 200 | 50 Saracini, Alessandro, Sienna.—
Olive oil. 201 |
| 24 Fonzo, Domenico, Catania.—Cream
of tartar. 200 | 51 Pucci, Sansedoni Aless., Sienna.—
Olive oil. 201 |
| 25 Di Mauro, Francisco, Catania.—
Cream of tartar. 200 | 52 Ricasoli, Baron Bettino, Florence.—
Olive oil. 201 |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

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- 53 Botti, Alessandro, Chiavari, Genoa.—Olive oil. 201
- 54 Calamari, Pietro, Milan.—Soaps. 201
- 55 Gianoli Bros., Milan.—Soaps. 201
- 56 Giuffrida, Leotta Giovanni, Catania.—Oil of sweet almonds. 201
- 57 Merlo, Baron Vincenzo, Palermo.—Olive oil. 201
- 58 Sciacca della Scala, Baron, Palermo.—Olive oil. 201
- 59 Martinez, Filippo, Palermo.—Olive oil. 201
- 60 Inguaggiato, Baron Croce, Palermo.—Olive oil. 201
- 61 Paochiani, Elisae, Passignano, Umbria.—Olive oil. 201
- 62 Rossi, Leopardi Cav. Cesare, Comiso, Syracuse.—Soaps. 201
- 63 Fazio, Domenico, Palermo.—Olive oil. 201
- 64 Galli, Cesare, Florence.—Olive oil. 201
- 65 Piacente, Francesco, Bari.—Olive oil. 201
- 66 Agrarian Committee for Thirty Exhibitors, Florence.—Olive oil. 201
- 67 Jatta, Antonio, Ruvo di Puglia.—Olive oil. 201
- 68 Chamber of Commerce & Arts, of Bari.—Olive oil. 201
- 69 Mazzullo, Cav. Luigi, Messina.—Olive oil. 201
- 70 Di Salvo, Salvatore, Messina.
a Olive oil. 201
b Essences. 230
- 71 Agrarian Committee of Chiavari.—Olive oil, soap. 201
- 72 Marzi Bros., Poggibonsi, Sienna.—Olive oil. 201
- 73 Russo, Calogero, Termini, Palermo.—Olive oil. 201
- 74 Favare, Marchese della, Palermo.—Olive oil. 201
- 75 Martillaro, Mar. Carlo, Palermo.—Olive oil. 201
- 76 Tucci-Savo Benedetto, Rome.—Olive oil. 201
- 77 Agosti Brothers, Bagnoria, Rome.—Olive oil. 201
- 78 Marini, Marq. Pietro, Rome.—Olive oil. 201
- 79 Rotali, Francesco, Rome.—Olive oil. 201
- 80 Isnardi, Pierre, Leghorn.—Olive oil. 201
- 81 Conti, E., & Sons, Leghorn.—Soaps. 201
- 82 Tarussi, Luigi, & Bros., Leghorn.—Olive oil. 201
- 83 Generola, Felice, & Sons, Naples.—Soaps. 201
- 84 Anselmi & Marassi, Naples.—Oils. 201
- 85 Roeco, Francesco, Catania.—Olive oil. 201
- 86 Rolando, Giacomo, Modena.—Ink. 202
- 87 Mora, Domenico, Turin.—Chestnut extract for dyeing. 202
- 88 Morandi, Pietro, Milan.—Ink. 202
- 89 Bassolini, Vincenzo, Milan.—Various colors. 202
- 90 Bonacina, Cesare, Milan.
a Varnishes, ink. 202
b Aromatic tooth paste. 203
- 91 Maranesi, Gaetano, & Masetti Bartolomeo, Bologna.—Ink. 202
- 92 Gnocchi, Giovanni, Milan.—Inks. 202
- 93 Scarselli, Benedetto, Rome.—Gru-ma, incrustation from casks. 202
- 94 Ghibellini Bros., S. Giovanni in Persiceto, Bologna.—Varnish. 202
- 95 Santi, Amantini, Adamo, Florence.—Perfumery. 203
- 96 Lardera, A., Milan.—Perfumery. 203
- 97 Cosentini & Caruso, S. Manno Marchesato, Calabria Citra.—Extract of liquorice. 203
- 98 Scocchiolini, Adone, Rome.—Pomatum. 203
- 99 Pateguazza Bros., N. & A., Rome.—Perfumery. 203
- 100 Bortolotti, Pietro, Bologna.—Felsina water (for the toilet). 203
- 101 Antonelli, Cav. Alessandro, Bologna.—Essence of lemon. 203
- 102 Alessi & Bonaventura, Messina.—Essences. 203
- 103 Alessi, Gaetano, Messina.—Essences. 203
- 104 Ottaviani Bros., Messina.—Essences. 203
- 105 Rizzuto Carmelo, Reggio-Calabria.—Essences. 203
- 106 De Sieto Bros., Reggio-Calabria.—Essences. 203
- 107 Siles, Ignazio, Reggio-Calabria.—Essences. 203
- 108 Lacoria, Felice, Reggio-Calabria.—Essences. 203
- 109 Enological & Agrarian Society of Acireale, Sicily.—Essence of lemon. 203
- 110 De Nava, Giuseppe di P., Reggio-Calabria.—Essences. 203
- 111 Mostardini, Adolfo, Florence.—Perfumery. 203
- 112 Melissari, Giuseppe, Florence.—Essences. 203
- 113 Pennise, Baron di Floristallo, Catania.—Boiled essence of lemon (agro). 203
- 114 Lavaggi, Francesco, Trofarello, Turin.—Matches. 204
- 115 Desflachi, Ambrogio, Moncalieri, Turin.—Wax and wood matches. 204
- Ceramics—Pottery, Porcelain, Glass, etc.
- 116 Trojani, G. Batta, Florence.—Bas-relief in baked clay. 206
- 117 Pagliaccetti, Raffaello, Florence.—Statues in baked clay. 206
- 118 Stock Company for Manufacturing Bricks, Reggio, Emilia.—Bricks. 206

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- 119 Tomei, Albiani Franco, Pietrasanta, Lucca.—Sample of pavements. 208
 120 Pellas, Giuseppe, Florence.—Galvano-plastic ornaments. 209
 121 Bertini, Emilio, Pisa.—Crockery. 210
 122 Miliani, Cesare, Fabriano, Ancena.—Crockery. 210
 123 Torelli, Jafet, Florence.—Crockery. 210
 124 Castellani, Torquato, Rome.—Crockery. 210
 125 Ferniani, Count Annibale, Faenza.—Crockery. 210
 126 Crockery Society of Farina, Faenza.—Artistic crockery. 210
 127 Benucci & Latti, Pesaro.—Majolica vases and dishes. 211

Furniture and Objects of General Use in Construction and in Dwellings.

- 128 Ammirati, Domenico, Palermo.—Chairs. 217
 129 Lopez, Salvatore, Palermo.—Stone tables. 217
 130 Coco, Salvatore, Palermo.—Ebony furniture. 217
 131 Cavallaro, L. & G., Palermo.—Metallic beds. 217
 132 Catalano, Antonio, Palermo.—Furniture. 217
 133 Martinotti, Luigi, Turin.—Carved furniture. 217
 134 Buzzi, Giberto Francesco, Varese, Lombardo.—Marble furniture. 217
 135 Lancetti, Federigo, Perugia.—Furniture. 217
 136 Elli, Luigi, Milan.—Seats for theatre. 217
 137 Fava, Avo, Niccolò, Florence.—Carved walnut furniture. 217
 138 Castelvèdere, Luigi, Brescia.—Metal candelabra and chased dish. 218
 139 Rolandi, G. Batto, Milan.—Crystals and glasses. 219
 140 Grattarola, Cesare, Bologna.—Picture frames of other exhibitors' pictures. (*In Art Gallery.*) 220
 141 Pontif. Oleographic Society, Bologna.—Frames. 220
 142 Sarettiere, Giuseppe, Palermo.—Lamps. 223
 143 Menici, Angiolo, Leghorn.—Shower bath. 226
 144 Della, Casa Nicola, Baveno, Novara.—Granite cornice. 227
 145 Bianchi & Molinari, Milan.—Wooden floor. 227
 146 Vajani, Pietro, Milan.—Window blinds, curtains, etc. 227
 147 Rizzi, Augusto, Milan.—Persian window blinds. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 148 Vecchiotti, Cesare, Florence.—Green-weed (ginestro) products. 229
 149 Polidori, Count Augusto, Anghiari, Arezzo.—Prepared green-weed (ginestro). 229

- 150 Scurati, Manson de G., Biella, Novara.—Skein of cotton. 230
 151 Assetto di Graziani Bros., Chieri, Turin.—Cotton goods. 230
 152 Madini, Augusto, & Co., Bologna.—Seamless bags. 230
 153 Gentiluomi, I. V., & Co., Pisa.—Colored cotton goods. 231
 154 Meda, Bernardo, Monza, Milan.—Colored calico. 232
 155 Alessio Bros., Milan.—Red calico. 232
 156 Special Committee of Salerno.—Linen goods. 233
 157 Remaggi Bros., Navacchio, Pisa.—Linen goods. 233

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- 158 Caldara, Salvatore, Palermo.—Cloths. 235
 159 Mangeri, Antonino, Messina.—Cloths. 235
 160 Barbarulo Bros., Naples.—Cloths. 235
 161 Radieri Bros., Gandino, Bergamo.—Felted flannel and cloth. 235
 162 Barbarulo, Antonio, Peluzzano, Salerno.—Cloths. 235
 163 Correction Department of Saliceto, Modena.—Cloths. 235
 164 Assetto di Graziani Bros., Chieri, Turin.—Blankets. 237
 165 Chapelle & Co., Turin.—Woolen blankets. 237
 166 Bass, Abrate, & Co., Turin.—Blankets. 237
 167 Woolen Manufactory of Borgo Sesia, Turin.—Worsted wool. 238
 168 Bozzalla, Gio, & Son, Biella, Novara.—Woolen goods. 238
 169 Bozzalla, Antonio, & Brother, Coggiola, Novara.—Woolen goods. 238

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 a Raw silk. 242
 b Woven silk. 245
 171 Chiericoni, Ugolino, Messina.—Cocoons. 242
 172 Giannotti, Giuseppe, Barga (Luc-ca).
 a Raw silk. 242
 b Spun silk. 244
 173 Diena, M. G., Modena.—Raw silk. 242
 174 Sinigaglia, Salomon, Heir of, Lat-es, Turin.
 a Raw silk. 242
 b Woven silk. 245
 175 Franzì Bros., Alsano Maggiore, Bergamo.
 a Raw silk. 242
 b Woven silk. 245
 176 Dalla Poza, Filippo, Vicenza.
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 b Woven silk. 245
 177 Frizzoni, Antonio F., Bergamo.
 a Raw silk. 242
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Silk, Clothing, Jewelry, Stationery.

- 178 Meyer & Co., Milan.
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 b Spun silk. 244
- 179 Sciacca della Scala, Baron, Palermo.—Silk. 245
- 180 De Silvestri, Salvatore, Rome.—Silk goods. 245
- 181 Cagliani, Leopoldo, Milan.—Silk velvets. 247

Clothing, Jewelry and Ornaments;
Traveling Equipments.

- 182 Morandi, G. Montepulciano, Siena.—Dress for lady. 250
- 183 Incerti Anselmo, Modena.—Kilt goods. 250
- 184 Comellini & Buratti, Bologna.—Corsets. 250
- 185 Marchesini, Pietro, Bologna.—Straw hats. 251
- 186 Ricci, Luigi, & Sons, Florence.—Straw hats. 251
- 187 Duranti, Agostino, Florence.—Straw hats. 251
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253 Arrosto, Gioacchino, Messina.—
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258 Papini, Leopoldo, Florence.—
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259 Gramignani, Leopoldo, Ancona.—
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260 Noel-Winderling Bros., Milan.—
Dental anatomy. 277
261 Testi, Ulisse, Bologna.—Dental
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262 Sirletti, Francesco, Rome.—Sets
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Metallic Products.

- 263 Guelpa-Piazza Bros., Biella,
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264 Giulivo, B., & Co., Turin.—Iron
and tin knives, forks, and spoons. 281
265 Ferrino, Cesare, Turin.—Sand
linen and sand paper. 282
266 Bonini, Emilio, Pignone, Florence.
—Articles in zinc. 283
267 De Poli Bros., Vittorio, Treviso.—
Bronze church bell. 283

- 268 Zalaffi, Benedetto, Sienna.—Iron
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Mechanical lock. 284
270 Cane, Geremia, Bologna.—Tools
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273 Escoffier, Giuseppe Gio., Florence.
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- 274 Giacomini, Luigi, & Co., Treviso.—
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276 Chamber of Commerce of Syra-
cuse.—Ropes. 287
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279 Marchini, Cesare, Fiesole, Flor-
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- 283 Bazzantile, Figlio, Florence.—Cupid
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284 Porcinai, Antonio, Florence.
a Surprised (bust). 400
b Venus of Canova (statue). 400
285 Torelli, Lot, Florence.—David, by
Michael Angelo (copy). 400
286 Garofoli, Oreste, Rome.
a Trasteverina (Roman costume). 400
b After the Theatre. 400
c Ciociara (Roman costume). 400
d Genzanese. 400
287 Ricci, Paolo, Florence.—Dante
(statuette). 400

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

EGYPT.

(South of South Avenue, Columns 12 to 15.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures.

Minerals, Ores, Building Stones, Mining Products.

- 1 National Museum.
- a Rough gold-dust, petrified wood. 100
- b Rough, hewn, and polished marbles, alabaster, and limestones. 102
- c Crude lime rock, cement, burned lime, and plaster. 103
- d Clays and materials for manufacturing porcelain and faience. 104
- e Sand. 106
- f Soil and water. 107

Metallurgical Products.

- 2 National Museum.
- a Solid rough gold pieces. 110
- b Iron. 111

Chemical Manufactures.

- 3 Laboratory of the Government.
- a Chemicals of all kinds and pharmaceutical preparations. 200
- b Prepared oils, solid and liquid. 201
- c Flavoring extracts, solid and liquid. 203

Ceramics—Pottery, Porcelain, etc.

- 4 National Museum.
- a Bricks from Lower Egypt. 206
- b Porcelain tiles. 208
- c Egyptian earthenware, from Upper Egypt. 210
- 5 Brugsch Bey, Cairo.
- a Majolica ware in different designs. 211
- b Porcelain of all kinds. 213

Furniture, and Objects of General Use in Construction and in Dwellings.

- 6 Parvis, Mr., Cairo.—Oriental drawing-room furniture. 217
- 7 National Museum.
- a Table furniture of porcelain, solid gold and silver ware, coffee sets, and vessels of brass. 218
- b Utensils for kitchen, and tinware. 224

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 8 National Museum.
- a Coarse fabrics of rattan, bark, palm-leaf, grass, and rushes. 229
- b Cotton fabrics, unbleached, bleached, and dyed. 231

- c Linen fabrics, uncolored and dyed, and linen canvas and duck for awnings and tents. 233

Woven and Felted Goods of Wool and Mixtures of Wool.

- 9 National Museum.
- a Fabrics of wool, fancy cassimeres. 235
- b Flannels. 236
- c Robes. 237
- 10 National Museum.—Collection of Brussels carpet, Melton, and tapestry, from wool and camel's hair. 239

Silk and Silk Fabrics, and Mixtures in which Silk is the predominating material.

- 11 Trasmontino, Mr., Cairo.—Cocoons and raw silk. 242
- 12 National Museum.
- a Twisted silk in spools and skeins. 243
- b Woven silk, lute-strings, satins, and foulards. 245
- c Woven figured silk goods. 246
- d Fancy silk and velvet ribbons. 248

Clothing, Jewelry and Ornaments; Traveling Equipments.

- 13 National Museum.
- a Dress goods for men's and women's wear, with gold and silver trimmings. 250
- b Hats, and boots; women's shoes embroidered in velvet, silk, gold, and silver. 251
- c Silk dress trimmings and embroideries, woven with gold and silver. 252
- d Turquoises, jewelry, and ornaments worn upon the person. 253
- e Fancy articles, dress adornments, fans, walking-canes, sunshades, and pipes of all descriptions, with gold, silver, and silk woven ornaments, ostrich and marabout feathers. 254
- f Fancy leather work. 255
- g Historical collection of the national costumes from Abyssinia and the Soudan. 257

Paper, Blank Books, and Stationery.

- 14 National Museum.
- a Stationers' articles of the Orient. 258
- b Writing paper. 259

Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus.

- 15 National Museum.—Swords, spears, and dirks. 261

Manufactures, Education and Science, Art, Agriculture.

- 16 Cassegrain, F. P., of Cairo.—Hunting firearms of a special pattern. 269

Medicine, Surgery, and Prothesis.

- 17 National Museum.—Medicinal plants. 272
18 National Museum of Egypt, Mr. Zucchinetti, of Cairo.—Veterinary instruments. 276

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 19 Mechanic Institute of Boolak.—Iron hardware for different mechanical purposes. 284

Carriages, Vehicles, and Accessories.

- 20 National Museum of Egypt, Mr. Zucchinetti, of Cairo.—Furniture for horses and mules, harness and saddlery, ornamental mule blankets, and silk woven saddle blankets. 296

Educational Systems, Methods, and Libraries.

- 21 Ministry of Public Instruction.—Maps, charts, penmanship, drawings of pupils' work and course of study in water colors, from the public schools and academies. 300

22 National Museum.

- a Map of Egypt and the new annexed provinces made by Mr. Friederichsen. 300
b Mechanical instruments executed by scholars at the Polytechnic school. 302
c Text-books and apparatus. 306

- 23 Onsy, Mr., of Cairo.—Types and books for the education of the blind. 303

24 Ministry of Public Instruction.

- a College and school statistics and educational reports of Egypt. 304
b Statistical reports. 305

- 25 Mourès & Co., Cairo, Ministry of Public Instruction.—Printed works, school and text books, and dictionary, from the public schools of Egypt; literature in the Arabic language, newspapers, and periodical literature. 306

Institutions and Organizations.

- 26 National Museum.—Ethnographical collection and publications. 312

Scientific and Philosophical Instruments and Methods.

- 27 National Museum.
a Egyptian weights and measures. 322
b Musical instruments from Egypt and the provinces of Soudan. 327

Engineering, Architecture, Charts, Maps, and Graphic Representations.

- 28 National Museum.—Maps of railways, roads, telegraphs, and postal service; topographical maps and charts. 335

Physical, Social, and Moral Condition of Man.

- 29 National Museum.—Collection of Egyptian gold, silver, and copper coins. 344

Sculpture.

- 30 National Museum.—Plaster casts from Egyptian monuments. 402

31 National Museum.

- a Stones with ancient Arabic inscriptions. 401
b Hammered relief works in copper, and collection of plates, trays, and vases of the modern time of Egypt. 403

- 32 Vegia, Mr., Cairo.—Repoussé and rehaussé work in copper and iron of the ancient Arabic time. 403

- 33 National Museum.—Specimens of "Mousharabic" window patterns in wood and ivory, engraved wood. 405

Painting.

34 National Museum.

- a View of Cairo and other water-color paintings, executed by Mr. Weidenbach, Berlin. 411
b Painted water-bottles. 413

Engraving and Lithography.

- 35 Ravon, H., Staff-officer National Museum.—Drawing in ink of the citadel of Cairo, list of the names of the caliphs and sultans who have reigned in Egypt, from Omar to Ismail Pacha, Khedive of Egypt, list of the names of Pharaohs. 420

- 36a Penasson, A., Alexandria.—Samples of lithographic printing. 423

Photography.

- 36 National Museum.—Collection of photographs, views of public works, costumes, scenery, panorama, and a collection of albums. 430

Industrial and Architectural Designs, Models, and Decorations.

- 37 National Museum.—Collection of Arabic ornaments (plaster and zinc casts, painted and gilt), from time of the caliphs, made by Schmo-ranz. 443

Decorations with Ceramic and Vitreous Materials, Mosaic and Inlaid Work.

38 National Museum.

- a Ancient glass lamps from the mosques. 451
b Woodwork inlaid with ivory; ancient door from the sanctuary of a mosque, carved and inlaid in ivory and ebony. 452

Arboriculture and Forest Products.

39 National Museum.

- a Collection of woods from Egypt and the annexed provinces, cotton tree. 600
b Materials for dyeing and other industrial purposes. 602

- 40 National Museum & Mr. Heller.—Samples of gums. 603

Agricultural Products.

41 National Museum.

- a Cereals. 620
b Legumes—beans, lentils, etc. 621
c Tuberculous alimentaries. 622
d Tobacco. 623
e Cotton seeds. 624

Animal and Vegetable Products, Textile Substances.

Water Animals, Fish Culture and Apparatus.**43 National Museum.**

a Crocodiles.

640

b Pearls.

645

Animal and Vegetable Products.**43 National Museum.**

a Samples of butter.

651

b Samples of grease, colored hides, skins, collection of hippopotamus and rhinoceros horns, tusks of elephants and hippopotami.

652

c Ostrich eggs and feathers.

653

d Edible pulps, seeds, fruits, pastes, and confections, dried fruits and vegetables.

656

e Flour and rice.

657

f Starches.

658

g Sacchariculture.

659

h Wines, alcohol, rum, and vinegar.

660

i Biscuits.

662

Textile Substances of Vegetable or Animal Origin.**44 Estate of the Khedive.**—Collection of over 2000 cotton samples, representing the crops of eight years, with classification and price of sale in Egypt and England.

665

45 National Museum.—Textile fibres, raw and manufactured, cords and ropes, flax.

668

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

TUNIS.

(South of South Avenue, Columns 10 to 14.)

COLLECTIVE EXHIBIT.

Manufactures, Education and Science, Art.

- | | | | |
|---|--|---|--|
| Minerals, Ores, Stones, Mining Products. | | 9 Valensi, M., Tunis and Paris. | |
| 1 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Minerals and ores of Tunis. 200 | | a Woven silks. 245 | |
| | | b Hangings. 246 | |
| Chemical Manufactures. | | Clothing, Jewelry, and Ornaments; Traveling Equipments. | |
| 2 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Essences and flavoring extracts. 203 | | 10 His Highness Sidi Mohammed Essadok, Bey of Tunis. | |
| | | a Burnous. 250 | |
| | | b Embroideries. 252 | |
| | | c Jewelry. 253 | |
| | | d National costumes. 257 | |
| Ceramics—Pottery, Porcelain, Glass, etc. | | 11 Valensi, M., Tunis and Paris. | |
| 3 Valensi, M., Tunis and Paris.—Pottery. 206 | | a Jewelry. 253 | |
| | | b Oriental manufactures generally. 254 | |
| | | c Tunisian costumes. 257 | |
| 3a His Highness Sidi Mohammed Essadok, Bey of Tunis. 206 | | Military and Naval Armaments, Ordnance, Firearms, and Hunting Apparatus. | |
| a Pottery. 210 | | 12 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Ancient and modern arms. 265 | |
| b Earthenware. 210 | | 13 Valensi, M., Tunis and Paris.—Arms. 265 | |
| Furniture and Objects of General Use in Construction and in Dwellings. | | Carriages, Vehicles, and Accessories. | |
| 4 Valensi, M., Tunis and Paris. | | 14 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Saddlery; furniture and accoutrements for horses, mules, and camels; ornamental horse and mule saddles and bridles. 266 | |
| a Inlaid furniture. 217 | | | |
| b Brackets. 220 | | Scientific and Philosophical Instruments and Methods. | |
| 5 His Highness Sidi Mohammed Essadok, Bey of Tunis. | | 15 Valensi, M., Tunis and Paris.—Musical instruments. 309 | |
| a Inlaid and household furniture. 217 | | | |
| b Gilt brackets. 220 | | Ceramic Decorations, Mosaics, etc. | |
| Woven and Felted Goods of Wool and Mixtures of Wool. | | 16 Ancient mosaics from Carthage. 450 | |
| 6 His Highness Sidi Mohammed Essadok, Bey of Tunis. | | Physical, Social, and Moral Condition of Man. | |
| a Woolen blankets, shawls. 237 | | 17 His Highness Sidi Mohammed Essadok, Bey of Tunis.—Two Arab tents, exhibiting the domestic life and customs of Arab sheiks and Bedouins; farming implements of Arabs. (In Park.) 348 | |
| b Carpets, rugs. 239 | | | |
| 7 Valensi, M., Tunis and Paris. | | | |
| a Shawls. 237 | | | |
| b Carpets and rugs. 239 | | | |
| Silk and Silk Fabrics, and Mixtures in which Silk is the predominating material. | | | |
| 8 His Highness Sidi Mohammed Essadok, Bey of Tunis. | | | |
| a Woven silks. 245 | | | |
| b Hangings. 246 | | | |

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

ORANGE FREE STATE.

(South of South Avenue, Columns 2 to 5.)

COLLECTIVE GOVERNMENT EXHIBIT.

Minerals, Clothing, Animal and Vegetable Products.

<i>a</i> Diamonds in the rough, from the diamond fields of the Orange Free State.	100	<i>g</i> Cream of tartar fruit.	611
<i>b</i> Diamondiferous soil, with a diamond in it.	100	<i>r</i> Wheat, mealies, and Kaffir corn.	620
<i>c</i> Copper and iron ore, chlorastrolite, and magnesita.	100	<i>s</i> Stuffed birds.	633
<i>d</i> Coal.	101	<i>t</i> Butterflies and other insects.	638
<i>e</i> Pebbles accompanying the diamond.	102	<i>u</i> Tusks of ivory.	652
<i>f</i> Kaolin.	104	<i>v</i> Gemsbuck, roorbuck, rietbuck, and hartebeeste horns.	652
<i>g</i> Springbuck mats.	239	<i>w</i> Koodoo cow hides.	652
<i>h</i> Angora, blesbuck, and jackal karosses.	239	<i>x</i> Blesbuck skins.	652
<i>i</i> Boots of native manufacture.	251	<i>y</i> Hartebeeste and blesbuck skins, tanned.	652
<i>j</i> Pipes of native manufacture.	254	<i>z</i> Shambucks, long and short.	652
<i>k</i> Baskets of native manufacture.	289	<i>aa</i> Rhinoceros hide flexible rods, reins, thongs, and girdles.	652
<i>l</i> Harnesses and whips.	296	<i>bb</i> Whips of giraffe hide.	652
<i>m</i> Figures in wood, cut with a pen-knife.	405	<i>cc</i> Ostrich feathers and eggs.	653
<i>n</i> Blue gum, olive, and thorn woods.	600	<i>dd</i> Bird plumage, natural.	653
<i>o</i> Petrified wood.	600	<i>ee</i> Dried fruit.	656
<i>p</i> Sumach.	602	<i>ff</i> Mealie meal.	657
		<i>gg</i> Wool, washed and unwashed.	667
		<i>hh</i> Mohair of Angora goat.	669
		<i>ii</i> Model of transport wagon.	680

GRAND DUCHY OF LUXEMBURG.

COLLECTIVE EXHIBIT.

Ceramics, Clothing, Animal and Vegetable Products.

Ceramics—Pottery, Porcelain, Glass, etc.

- 1 Utschneider & Jaunes, Wasserbillig.—Cement products of Wasserbillig. 206

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 2 Charles, Auguste, & Co., Bonnevoie, near Luxemburg.—Kid gloves. 251
3 Mayer, Gabriel, Luxemburg.—Kid gloves. 251

- 4 Boot Manufactory of Luxemburg.—Boots and shoes. 251

Animal and Vegetable Products.

- 4a Charles, Auguste, & Co., Bonnevoie, near Luxemburg.—Tanned and dyed kid skins. 652
5 Michaelis, Frederic, Luxemburg.—Concentrated vinegar. 660
6 Pauly, Bouthon, & Co., Distillery Vinegar Manufactory.—Concentrated vinegar. 660
7 Eichhorn, Gustav, Wormeldang.—Moselle wines. 66c

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

CHINA.

(South of South Avenue, Columns 5 to 11.)

COLLECTIVE EXHIBIT.

Minerals, Manufactures.

Minerals, Ores, Stone, Mining Products.

- 1 Herman, G., Swatow.—Petrification. 100
- 2 Imperial Maritime Customs.
- a Coal. 101
- b Granite stones. 102
- c Borax. 104
- d Gypsum. 107

Metallurgical Products.

- 3 Imperial Maritime Customs.
- a Silver leaf and imitation of gold leaf. 110
- b Seed. 112
- c Tin foil. 113

Chemical Manufactures.

- 4 Imperial Maritime Customs.
- a Various seed, vegetable, and wood oils. 201
- b Varnish, indigo, and sundry other dyes and colors. 202
- c Sauce. 203

Ceramics—Pottery, Porcelain, Glass, etc.

- 5 Imperial Maritime Customs.
- a Bricks. 206
- b Roof tiles. 208
- c Collection of earthenware. 210
- 6 Tack Loong, Canton.
- a Earthenware ornaments, figures, etc. 210
- b Porcelain vases, flower-pots, tea set, cigar holders, etc. 213
- 7 Bean & Jardine, Kiukiang.—Porcelain vases, flower-pots, cups, etc. 213
- 8 Fow Loong, Canton.—Porcelain vases, dinner service, etc. 213
- 9 Hö Kan Cheu, Shanghai.—Collection of old china. 213
- 10 Hu Kwang, Yung Hang Chow.—Collection of old china porcelain. 213
- 11 Imperial Maritime Customs, Canton.—Porcelain vases, dinner, dessert, tea, and toilet sets, flower-pots, candle-holders, bowls, cuspadors, etc. 213
- 12 Imperial Maritime Customs, Kiukiang.—Porcelain vases, cups, and bowls; plates, teapots, etc. 213
- 13 Imperial Maritime Customs, Shanghai.—Collection of old china. 213
- 14 Kopsch, H., Kiukiang.—Porcelain vases, cups, bottles, cups and plates, dessert dishes, goblets, etc. 213
- 15 Lovatt, W. N., Kiukiang.—Porcelain vases, flower-pots, garden seats, cups, dessert dishes, goblets, etc. 213

- 16 Moore, C. F., Kiukiang.—Porcelain teapots, bottles, flower-pots, ornaments, etc. 213
- 17 Rose, S. C., Kiukiang.—Porcelain vases, flower-pots, jars, plates, dishes, cups, dinner sets, etc. 213
- 18 Tong Chock-hing, Kiukiang.—Porcelain vases, ornaments, dessert service, etc. 213
- 19 Toin Peh Mei, Kiukiang.—Porcelain vases, teacups, fruit stands, dinner sets, and screen. 213
- 20 Wadman, E., Ningpo.—Collection of old china vases. 213

Furniture and Objects of General Use in Construction and in Dwellings.

- 21 Fow Loong, Canton.—Blackwood furniture—tables, sofas, chairs, screens, cabinets, etc. 217
- 22 Imperial Maritime Customs, Canton.
- a Blackwood, bamboo, rattan, and lacquered furniture. 217
- b Rattan cradle, and children's chairs. 221
- c Different kinds of lanterns. 223
- 23 Kopsch, H., Kiukiang.—Screens. 217
- 24 Lien Shing, Canton.—Lacquered furniture, chairs, and blackwood screens. 217
- 25 Sung Sing Kung, Ningpo.
- a Carved furniture—beds, chairs, tables, bookcases, cabinets, etc. 217
- b Carved picture and photograph frames. 220
- 26 Imperial Maritime Customs, Ningpo.
- a Teakettles and dishes. 224
- b Washbasins. 226

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 27 Fergusson & Co., Chefoo.—Samples of straw braid 229
- 28 Imperial Maritime Customs.
- a Samples of grass cloth, rattan and coir matting, etc. 229
- b Plain cotton fabrics. 230
- c Printed cotton fabrics. 232
- d Hemp cloth. 233

Woven and Felted Goods of Wool, etc.

- 29 Imperial Maritime Customs.—Felted rugs. 239

Silk and Silk Fabrics.

- 30 Fergusson & Co., Chefoo.
- a Raw silk. 242
- b Plain woven silks. 245

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Manufactures, Education and Science, Art, Agriculture.

- 31 Imperial Maritime Customs, Shanghai.—Collection of reeled and re-reeled silks. 242
- 32 H8 Kan-cheu, Shanghai.—Plain woven silks. 245
- 33 Hu Kwang-Yung, Hangchow.—Plain woven silks. 245
- 34 Imperial Maritime Customs.
 a Plain woven silks. 245
 b Figured silk piece goods. 246
 c Embroidered silk scarfs. 247
- 35 Fergusson & Co., Chefoo.—Figured silk piece goods. 246
- 36 H8 Kan-cheu, Shanghai.—Figured silk piece goods. 246
- 37 Hu Kwang-Yung, Hangchow.—Figured silk piece goods. 246
- 38 Wu, Shanghai.—Soochow gauzes. 247

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 39 Imperial Maritime Customs.
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- 4 Designs and photographs for schools.
- 5 Sectional specimens of woods.
- 6 Leaves of various plants.
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- 9 Moku-zai-sho-ran (album showing samples of the various woods used for industrial purposes).
- 10 Artificial fruits.
- 11 Ancient and modern medical and surgical books, and modern surgical instruments made by K. Iwashiya.
- 12 Medicines and drugs.
- 13 I-in zas-si, miscellaneous reports of the hospital pertaining to the medical academy.
- 14 Anatomical designs.
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- 16 Lacquer work, showing process of manufacture and implements used.
- 17 Wood engravings and engraving-tools, blocks and types; printing materials.
- 18 Photographs.
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- 237 Shinoyama, A. U., Kiyoto.—Bronze sweetmeat box. 403
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- 3 Hitchcock, H. R.—Geological specimens from crater of Kilauea. 100
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- 12c Kawaiahao Female Seminary.
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- 13 Emma, Queen.
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- 20 Williams, C. E.—Canes. 234
- 21 Wilder, Helen.—Maanahiki woman's hair. 234
- 22 Young, Mrs.—Wreath of mosses and shells. 234

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- 23 Department of War.—Hawaiian flag, royal standard. 232

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d Scenery in Iao Valley.

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52 Austin, S. L., Hilo.—Cane sugars. 659

53 Afong & Achuck, Hilo.—Cane su-
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54 Campbell & Turton, Lahaina.—Cane
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- 3 Leao, D. Agostinho, S. E.—Sulphuret of lead. 200
- 4 Lendenberg, L. B.—Salt. 200
- 5 Penna, A. G. d'Araujo.—Homœopathic vegetable tinctures and opodeiod. 200
- 6 Chemical Laboratory.—Chemical and pharmaceutical preparations. 200
- 7 Maia, Ferreira, & Co.—Pharmaceutical preparations. 200
- 8 Perdigao, D. F. Z.—Pharmaceutical products. 200
- 9 Province of Maranhao.—Pharmaceutical preparations. 200
- 10 Province of San Paulo.—Medical preparations. 200
- 11 Yiotti, E.—Pharmaceutical preparations. 200
- 12 Province of Parã.—Medicinal oils. 200
- 13 Cardoso & Gonsalves.—Soap. 201
- 14 Alves, Pereira, & Co.—Soap and candles. 201
- 15 Guimaraes, A. J. A.—Soap and candles. 201
- 16 Oliveira & Bro.—Soaps. 201
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- 21 Safarana, J.—Wax candles. 201
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- 29 Lang & Co.—Toilet soaps. 203
- 30 Leao & Alves.—Perfumery. 203
- 31 Freire, Otto.—Essences. 203

- 32 Lepage, F. J.—Essences and pomades. 203
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- 34 Lang, J.—Toilet soaps. 203
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 - b Tortoise-shell boxes and articles of straw. 218
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- 48 Army Arsenal of Porto-Alegre.—Secretary of cedar wood. 217
- 49 House of Correction of Bahia.—Furniture made by the inmates. 217
- 50 House of Correction of Rio de Janeiro.
 - a Secretary and cabinet suit of satinwood. 217
 - b Baskets, barrels, and stands for manioc flour. 224
- 51 Kern, Clara, & Lang, Tela.—Reclining chair. 217
- 52 Itabapoana, Baron of.—Reclining chair. 217
- 53 Gerth, R. J.—Willow furniture. 217
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- 88 Moreira, F. J., & Co.—Chairs. 217
- 89 Alipio, D. J.—Writing-desk of sole leather. 217
- 90 Rodriguez, A. A.—Writing-desk. 217
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- 93 Borddal, Jonas.—Tables and shelves. 217
- 94 Province of Santa Catharina.—Furniture. 217
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- 80 Barros, Diogo A. de.—Cotton goods. 230
- 81 Anhaia & Angelo.—Cotton goods. 230
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- 83 College of the Immaculate Conception.—Cotton hammocks. 230
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- 86 Petropolitan Co.—Cotton goods. 230
- 87 Chaná, Barthelemy.—Dyed cotton goods. 230
- 88 Reyner, F.—Dyed cotton goods. 231
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- 90 Keller, Felipe.—Linen goods. 233
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- 92 Colony of Nova Petropolis.—Linen goods. 233
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- 100 Lopez, F. J. A.—Pantaloon and other cotton wear. 250
- 101 Roballo, J. J.—Coat of fine cloth. 250
- 102 Grava, Frei L. da.—Knitted shirt. 250
- 103 Amaral & Co.—Complete suit for gents. 250
- 104 Fayett & Battcher.—Pantaloon. 250
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- 117 House of Correction, Rio de Janeiro.—Boots and shoes. 251
- 118 Fischer, F.—Hats and caps. 251
- 119 Figueredo & Co.—Boots and shoes worn by the army and navy. 251
- 120 Cathiard, C. F.—Boots and shoes. 251
- 121 Berthon.—Ladies' shoes. 251
- 122 District of Paulo Alfonso.—Leather hats. 251
- 123 Silva, H. J. da.—Canvas shoes. 251
- 124 Requiao, F. P.—Hats. 251
- 125 Gomes, M. M. Rodriguez.—Boots and shoes. 251

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 136 Cavalcanti, J. S. H.—Umbrella, with secret spring. 254
 137 Henke Bros.—Walking-canes. 254
 138 Leme, D. R. Paes.—Leather walking-canes. 254
 139 Rocha, J. P. da.—Buttons, earrings, and watch chain made of cocoa. 254
 140 Ferreira, L. Gomes.—Walking-canes. 254
 141 Barros, A. A.—Walking-canes. 254
 142 Bastos, José Xavier.—Carved walking-cane. 254
 143 Costa, J. F. da.—Pictures made of mooses and insects. 254
 144 Reis, H. F. dos.—Walking-cane. 254
 145 Province of Rio Grande do Norte.—Jewelry boxes of wood and tortoise-shell. 254
 146 Province of Maranhao.—Drinking-cups of wood. 254
 147 Silva, F. J. X. da.—Chalices and cups of sassafras. 254
 148 Sabut, George.—Objects made from pine-tree knots. 254

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- 149 Leusinger Sons.—Blank books and specimens of binding. 261
 150 Seckler, J.—Specimens of ruling and binding. 261

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- 151 Garrid, J. F. da Silva.—Druggist's scales. 274
 152 Merino & Co.—Surgical instruments. 276
 153 Costa, jr., M. F. da.—Artificial teeth. 277
 154 Faria, J. Bento da.—Artificial teeth. 277

- 155 Diniz, J. Borges.—Artificial teeth. 277

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- 156 Commission-General for the National Exhibitions.—Knives, daggers, and other implements. 281

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- 157 Commission-General for the National Exhibitions.
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 158 Almeida, A. R. de.—Cordage. 287
 159 Andrade, J. Neves.—Baskets. 289
 160 Mello, G. C. de.—Wooden urn. 289

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 162 Guimaraes, A. A. A.—Lady's saddle. 296
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 164 Lima, F. Gomes dos Santos.—Girths. 296
 165 Cahy, Baron of.—Leather reins and bridles. 296
 166 Cranz, Joao, & Pinto.—Harness and horse collar. 296
 167 Schmitt, Nicolau, & Co.—Complete set of harness. 296
 168 Guimaraes, T. T. A.—Saddles. 296
 169 Coullant, Almé.—Horse collars. 296
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 172 Moraes, T. C.—Saddle. 296
 173 Barros, J. de A.—Leather reins. 296
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 176 Barros, A. A., & Gaveao, B. A.—Whips. 296
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 179 Freischlag, F.—Patent leather. 652
 180 Costa, Eymael, & Co.—Tanned hides. 652
 181 Lima, F. G. S.—Tanned and sole leather. 652
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

ARGENTINE REPUBLIC.

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Chemical Manufactures.

- | | | | |
|--|-----|---|-----|
| 1 Serravallo, Carlos, Province of Corrientes.—Chemical and pharmaceutical preparations. | 200 | 14 Commission of Andalgalá, Province of Catamarca.—Rock salt from Laguna Blanca. | 200 |
| 1a Cabrera, Mauro, Province of Buenos Ayres.—Horse medicine. | 200 | 15 Provincial Commission, Province of Catamarca. | |
| 1b Cardalda, Inocencio, Province of Buenos Ayres. | | a Rock salt from Fiambalá, and saltpetre. | 200 |
| a Iodoform and pepsin. | 200 | b Soap. | 201 |
| b Glycerine. | 201 | 16 Lafone-Quevedo, Samuel A., Province of Catamarca. | |
| 2 Queirel, Joaquín, Province of Corrientes.—Depurative solution. | 200 | a Ashes of Cachi Yuyo for the production of carbonate of soda; carbonate of soda. | 200 |
| 3 Tava, Carlos, Province of Corrientes.—Bitters, digestive pepsin wine, pectoral syrup. | 200 | b Soap. | 201 |
| 4 Sub-Commission of Bella Vista, Province of Corrientes.—Salt extracted from clay; sample of clay. | 200 | 17 Provincial Commission, Province of Jujui.—Salt. | 200 |
| 5 Perez, A. G., Province of La Rioja.—Tonic. | 200 | 18 Escobar, Juan D., Province of San Luis.—Salt. | 200 |
| 6 Gelos, Martín, Province of La Rioja.—Mineral salt. | 200 | 19 Terramola, Delfín, Province of San Juan.—Salt from the mines of Leoncito. | 200 |
| 7 Provincial Commission, Province of La Rioja.—Salt and alum. | 200 | 20 Jones, Fabian, Province of San Juan.—Ashes for manufacturing soap. | 200 |
| 7a Lagos, Joseph M., Province of Buenos Ayres.—Sheep wash. | 200 | 21 Vidal, M. A., Province of San Juan.—Ashes for manufacturing soap. | 200 |
| 7b Torres, Ana Barton de, Province of Buenos Ayres.—Fumigating lozenges. | 200 | 22 Bruna, Estevan, Province of San Juan.—Ashes for manufacturing soap. | 200 |
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CHILI.

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- 55 Pretta, Pedro, Santiago.—Extract of coffee. 656
- 56 Velasco, J. J., Mill Santiago.—Flour and bran. 657
- 57 Zapata, L., Department of Quillota, Province of Valparaíso.—Starch. 658
- 58 Donis, Felipe, Department & Province of Santiago.—Fruit syrup and lemonades. 659
- 59 Urmeneta, José Tomas de, Department of Limache, Province of Valparaíso.—Claret and sauterne wines. 660
- 60 Montane, R., Department of Limache, Province of Valparaíso.—Claret. 660
- 62 Campora Bros., Department of Santiago, Province of Santiago.—Wines and cider. 660
- 63 Ochagavia, Silvestre, Department of Santiago, Province of Santiago.—Claret and sauterne. 660
- 64 Infante, Manuel, Department of San Felipe, Province of Aconcagua.—Whisky, cider, and wine. 660
- 65 Rusque, Juan, Department of Quillota, Province of Valparaíso.—Claret. 660
- 66 Salva, de Pelle, Margarita, Department of Quillota, Province of Valparaíso.—Claret. 660
- 67 Zapata, L., Department of Quillota, Province of Valparaíso.—Whisky and claret. 660
- 68 Meneses, N., Department of Quillota, Province of Valparaíso.—Claret. 660
- 69 Rogers, Salamanca F., & Co., Department of Victoria, Province of Santiago.—Claret and sauterne. 660
- 70 Ovalle, D. & E., Department of Victoria, Province of Santiago.—Claret and sauterne. 660
- 71 Vargas, Blas, Department of Victoria, Province of Santiago.—Claret and sauterne. 660
- 72 Paulsen, J., Department of Chillan, Province of Chillan.—Claret, white, and port wine. 660
- 73 Gallo, Department of Copiapo, Province of Alacama.—Madeira wine. 660
- 74 Riquieri & Co., Department of Valparaíso, Province of Valparaíso.—Brandy, curaçao, and fancy liquors. 660
- 75 Serrano, H., Department of Concepcion, Province of Concepcion.—Claret and red wine. 660
- 76 Perez, Juan José, Department of Casablanca, Province of Valparaíso.—Whisky and claret. 660
- 77 Plageman & Co., Valparaíso.—Beer, ale, and lager beer. 660
- 78 Codellia, Juan, Santiago.—Vermicelli. 661
- Textile Substances of Vegetable or Animal Origin.**
- 79 Barros, Lauro, Santiago.—Wool. 667

PERU.

(South of South Avenue, Columns 2 to 5.)

COLLECTIVE EXHIBIT.

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Minerals, Ores, Stones, Mining Products.

- 1 Special Commissioner to the Exposition from Lima.—Minerals of Peru. 100

- 2 Helguero, Genaro S., Puirá.
a Sulphur. 100
b Tar. 101

- 3 Davila é hyos, Maguegua.—Plants of Maguegua. 120

Chemical Manufactures.

- 4 Garces, Vicente, Puirá.—Soap. 201
 5 Smith, Estéban G., Puirá.—Petroleum. 201
 6 Prugue, E., Lima.—Oil, soap, candles. 201

Furniture and Objects of General Use in Construction and in Dwellings.

- 7 Penitentiary of Lima.—Wood work. 220

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 8 Puirá, Department of.—Ponchas, towels, etc. 233

Woven and Felted Goods of Wool, etc.

- 9 Torre, Manuel Espirito la, Lima.—Vicuña texture. 238

Silk and Silk Fabrics.

- 10 Amazon, Department of the.—Vegetable silk. 244

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- 11 Brambilla, Fortunato, Lima.—Shirts, cuffs, and collars. 250

- 12 Ayacucho, Department of.
a Clothing. 250
b Silver filigree work, etc. 254

- 13 Torre, Manuel Espirito la, Lima.—Gloves. 251

- 14 Navarro, Pedro, Catasos.—Straw hats. 251

- 15 Pinó, Manual, Lima.—Gloves. 250

- 16 Penitentiary of Lima.
a Shoes. 251
b Canes. 254

- 17 Manzanares, Josefa, Lima.—Embroideries. 252

- 18 House of Santa Rosa, Lima.—Embroideries. 252

- 19 House of Santa Teresa, Lima.—Artificial flowers. 254

Paper, Blank Books, Stationery.

- 20 Perez, Manuel, Trinidad.—Typographical specimens. 261

Educational Systems, Methods, and Libraries.

- 21 Bureau of Education, Lima.—Map of Peru. 300

- 22 Raimondi, Antonio.—Map of Peru. 300

Institutions and Organizations.

- 23 Hevvera, Antonio M., Lima.—Antiquities. 312

- 24 Cohille, Guillermo B., Lima.—Antiquities. 312

Sculpture.

- 25 Manual de la Vega, Juana.—"General Grant" (wire bust). 400

- 26 Barreneches, Paulino, Lima.—Coat of arms of Peru (wood carving). 405

Painting.

- 27 Muniz, Ramon, Lima.—"La Chilena," "The Peruvian Rabona" (oil paintings). 410

Photography.

- 28 Municipal School of Lima.—Photographs. 430

Arboriculture and Forest Products.

- 29 Ayacucho, Department of.—Woods from Huanta and La Mar. 600

- 30 Special Commission to the Exhibition.—Woods. 600

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- 31 Ayacucho, Department of.—Nuts. 611

- 32 Valcarcel, Venancio, Moguega.—Olives. 611

- 33 Pisco, Province of.—Raisins. 611

Agricultural, Animal, Vegetable Products.

- 34 Vico, Vicente, Moguega.—Olives. 611
 35 Loreto, Department of.—Nuts. 611

Agricultural Products.

- 36 Society for the Increase of Peruvian Industry, Lima.—Grains. 620
 37 La Libertad, Department of.—Grains from the Province of Oxuzco. 620
 38 Loreto, Department of.
 a Beans. 621
 b Coffee. 623
 40 Ayacucho, Department of.—Coffee and cocoa. 623
 41 Amazon, Department of The.—Coffee and tobacco. 623
 42 Goybura, J. B., San Pedro.—Coffee. 623
 43 Pouehan, Antonio, & Co., Lima.—Cigars. 623
 44 Special Commissioner to the Exposition from Lima.—Huanco coffee. 623
 45 Puira, Department of.—Cigars. 623
 46 Botanical Garden of Lima.—Seeds. 624

Animal and Vegetable Products.

- 47 Segovia, Carolina, Challuanca.—Hides. 652
 48 Ayacucho, Department of.—Skins. 652
 49 Goybura, J. B., San Pedro.—Rice. 657
 50 Solf, Alfred, & Co., Chiclayo.
 a Rice. 657
 b Sugar. 659
 c Alcohol. 660
 51 Puira, Department of.—Starch. 658
 52 Laos, Mariano.—Sugars. 659
 53 Laos, Domingo, Lima.—Sugar. 659
 54 Swain, Enrique, Lima.
 a Sugar. 659
 b Rum and brandies. 660
 55 Ward, M. Adrian, Tacna.—Wines and brandies. 660
 56 Boza, José, Pisco.—Liquors, wines, and brandies. 660
 57 Davila é higos, Lima.—Brandies. 660
 58 Torre, Marianola, Lima.—Wines. 660
 59 Palacios, Fernande, Lima.—Wines and brandies. 660
 60 Pandoy, José Maria, Alagosta.—Wines. 660

- 61 Society for the Improvement of Peruvian Industries, Lima.—Amazon bit-
 ters, liquors. 666
 62 Barrios, José P., Moquegua.—Brandy and liquors. 666
 63 Cabello, Gregorio, Lima.—Liquors, wines, and brandies. 660
 64 Barrios, Domingo, Moquegua.—Wines. 660
 65 Barrios, Samuel, Moquegua.—Wines. 660
 66 Dios de la Quintana, Juan de, Ica.—Liquors, wines, and brandies. 660
 67 Barrios, José Maria.—Liquors, wines, and brandies. 660
 68 Torre, Manuel Espirito la.—Liquor from Conocancha. 660
 69 Salas & Terry, Lima.—Rum. 660
 70 Soldan, Luis Paz, Lima.—Olive oil. 662
 71 Ylo, Province of.—Olive oil. 662
 72 Lerra, Manuel J., Puira.—Castor oil. 662

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- 73 Dios de la Quintana, Juan de, Ica.—Cotton. 665
 74 Navvares, José Maria Cardenas, Ayacucho.—Huantra cotton. 665
 75 Elias, D. & C., Lima.—Cotton. 665
 76 Torre, Manuel Espirito la.—Wool. 667
 77 Ayacucho, Department of.
 a Wool. 667
 b Silk. 668
 78 Special Commissioner to the Exhibition.—Cocoons and silk. 668

Agricultural Engineering and Administration.

- 79 Peru, Government of.—Guano deposits from Lobos, Pabellon de Pica, and Guamillas. 661

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- 80 Botanical Garden of Lima.—Plants. 701
 81 Special Commissioner to the Exhibition.—Plants for silk worms. 704

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MEXICO.

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- 1 Mier, Antonio, State of Jalisco.—Natural salts of sodium. 200
- 2 Hay, Guillermo, City of Mexico.—Salts of sodium, extracted from the lakes of the Valley of Mexico. 200
- 3 Rio de la Loza, Manuel, City of Mexico.—Salts of sodium. 200
- 4 State Government of Yucatan, Merida.—Salts of sodium. 200
- 5 State Government of Campeche.—Salts of sodium. 200
- 6 State Government of Mexico.—Salts of sodium. 200
- 7 Rio de la Loza, Maximino.—Chemical products. 200
- 8 Ligero, M., City of Puebla.—Stearine. 201
- 8a Hurtado, H.—White and red lead. 200

Ceramics—Pottery, Porcelain, Glass etc.

- 9 Casarir, Alexander, & Co., City of Mexico.
 - a Indian vases. 206
 - b Porcelain. 213
- 10 Guerrero, Ygnacia, Puebla City.—Bricks. 206
- 11 State Government of Morelos.—Indian vases. 206

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- 12 Garcia, Francisco, State of Oaxaca.—Chairs of Mexican reeds. 217
- 12a State Government of Hidalgo.—Mexican agave fibre manufactures. 229
- 12b State Government of Yucatan.—Hammocks, shawls, bags, and other objects, made ofistle, or fibres, of the Mexican hereguen (agave of Yucatan). 229
- 13 Gomez, Poloma J., Guadalajara City.—Cotton yarns. 230
- 14 Rosario Hacienda, State of Coahuila.—Cotton goods. 230
- 15 Trapaga, Torriello, & Co., State of Oaxaca.—Yarns; cotton cloth. 230
- 16 Colima Workingmen's Club.—Cotton goods for vestings, etc. 230
- 17 Bermejillo, Pio, City of Mexico.—Cotton goods. 230

- 18 Davila, Hoyas, Saltillo City.—Cotton goods. 230
- 19 El Labrador Factory, Saltillo City.—Cotton goods. 230
- 20 Aurora Factory, Saltillo City.—Cotton goods. 230
- 21 Comte, Manuel, City of Puebla.—Cotton goods. 230
- 22 Patriotismo Factory.—Cotton cloths. 230
- 23 Quijano, Alexandro.—Cotton goods. 230
- 24 La Beneficencia Factory.—Cotton goods. 230
- 25 Benites, D., City of Puebla.—Cotton goods. 230

Woven and Felted Goods of Wool, etc.

- 25a Zempoala Factory, State of Guanajuato.—Woolen goods. 235
- 26 Rosa, Manuel, City of Mexico.
 - a Cassimeres. 235
 - b Blankets. 237

Silk and Silk Fabrics.

- 27 City of Puebla.—Silks and silk fabrics. 244

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 28 State Government of Coahuila.—Zarapes. 250
- 29 Tailors' Society, City of Mexico.—Charro dress. 250
- 30 State Government of Yucatan.—Indian baby dress. 250
- 31 Polo, Miss Luz, City of Mexico.—Fancy shirt. 250
- 32 Hernandez, Mrs. Amalia, City of Mexico.—Fancy shirts. 250
- 33 Cusset, N., City of Mexico.—Gloves. 251
- 34 Fernandez, Gertrude.—Embroidery. 252
- 35 Robles, Miss Rita.—Embroidery. 252
- 36 Perry, Miss Concepcion.—Embroidery. 252
- 37 Castorena, Miss Merced.—Embroidery. 252
- 38 Fuentes, Miss Loreto.—Embroidery. 252

Fancy Goods, Stationery, Medicine, Education and Science.

- 39 Montes de Oca, Miss Bernardo.—Embroideries. 252
 40 Velasquez, Mrs. Luz, City of Mexico.—Embroidered handkerchief. 252
 41 Loreto, Mrs., City of Mexico.—Embroidery. 251
 42 Mata, Mrs. Josefina, City of Mexico.—Fancy towel. 252
 43 Campo de Mata, Mrs. Josefa, City of Mexico.
 a Cushion in filigree. 252
 b Fancy box. 254
 45 Pensado, Mrs., & Sisters.—Artificial flowers. 254
 46 Carvajal, Antonio, City of Mexico.—Gold and silver galloon. 254

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- 47 Benfield, City of Mexico.—Paper. 260
 48 Palomar & Co., State of Jalisco.—Paper. 260
 49 Dias, Leon Francisco de, City of Mexico.—Specimens of printing. 260

Medicine, Surgery, Prothesis.

- 50 Grissl, J.—Medicinal plaster. 272
 51 Morrill, A.—Extract of sarsaparilla and other preparations. 272
 52 Society of Natural History.—Medicinal plants. 272
 53 Fink, Hugo, State of Vera Cruz.—Cinchona, from Cordova. 272
 54 Rogul, Antonio, City of Mexico.—Artificial teeth. 273
 55 Escacun, Mariano.—Artificial teeth. 273

Fabrics of Vegetable, Animal, or Mineral Materials.

- 56 Carvajal, Antonio, City of Mexico.—Indian manufactures from the State of Michoacan. 285
 56a Escobedo, Mariano, City of Mexico.—Indian manufactures from the State of Yucatan. 289

Educational Systems, Methods, and Libraries.

- 57 Cerna, David, City of Mexico.—Musical compositions. 302
 57a Peralta, Mrs. Angela.—Musical compositions. 302
 58 Garfias, Miss Maria.—Musical works. 302
 58a Rocha, Miss Amelia, City of Mexico.—Musical compositions. 302
 59 Alcaraz, Vicente.—Elementary arithmetic. 306
 60 Almazan, Pascal.—Treatise on railroads. 306
 61 Argandar, Alexandro.—Commercial arithmetic. 306
 62 Babirot, Aranyo y.—Children's recreative books. 306
 63 Castilla, Antonio y.—Lessons on religion and morality. 306
 64 Manuel, Contreras.—Elements of mathematics; lessons on morality. 306

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- 65 Chimalpopoca, Faustino, City of Mexico.—Nahuatl language. 306
 66 Covarrubias, Francisco.—Astronomical and geographical works. 306
 67 Domisguier, J.—Geography and statistics. 306
 68 Garcia y Cubas, Antonio.—Geography and statistics. 306
 69 Gama, Mucteo.—Geometry. 306
 70 Gutierrez, Serapio.—School books. 306
 71 Garcia, Vargas.—Elementary Spanish grammar. 306
 72 Gabran, Rivera.—Arithmetic. 306
 73 Hermosa, J.—Geography. 306
 74 Moral, Tomas.—Geography. 306
 75 Marroqui, J. M.—Democratic catechism and orthology. 306
 76 Murguria.—School books. 306
 77 Magalori, Horatio.—Italian grammar. 306
 78 Orellana, Estevan.—Latin language. 306
 79 Oviedo, Paulino.—School books. 306
 80 Orozco, Antonio.—Book-keeping. 306
 81 Payno, Manuel.—Compendium of geography. 306
 82 Paniagua, Cenobio.—Lessons on harmony. 306
 83 Rosas, José.—School books and other works. 306
 84 Rivera, T. Rio.—Reading book. 306
 85 Ruiz, Davila.—Metrical system. 306
 86 Remigio, Rodrigues.—Spanish grammar. 306
 87 Tamborrel.—Equations. 306
 88 Ferrazas, José Joaquin.—Elementary arithmetic. 306
 89 Zambrano, Francisco.—Lessons on orthology, and other works. 306
 90 Mexican Mining Society.—"El Promotor" (scientific paper). 306
 91 Tapia, Mrs. Ester.—Works on literature and poetry. 306
 92 Arriago, Joaquin.—Recreative science. 306
 93 Aguilar, Bruno.—Treatise on artillery. 306
 94 Arteaga, Juan.—Zöotechnic studies. 306
 95 Aiye, Patricio.—Calculus. 306
 96 Arroniz, Marcus.—Biography. 306
 97 Barcena, Mariano.—Works on natural history. 306
 98 Barcena, M. José Roa.—Treatise on history and geography. 306
 99 Brito, José.—Works on jurisprudence. 306
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 101 Castillo, Velasco.—Constitutional rights. 306
 102 Chavero, Alfredo.—Archæological essays. 306
 103 Dias, Barriero.—Mexican penal code. 306
 104 Dias, José Covarrubias.—Public instruction in Mexico. 306

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- 105 Escandon, Pedro.—Instruction in fine arts. 306
- 106 Esptein, Isidoro.—Works on topography and thermometry. 306
- 107 Garcia, Antonio Cubas.—His- 306
- 108 Iglesias, Jose Maria.—Historical documents. 306
- 109 Iglesias, Angel.—Laryngoscopy. 306
- 110 Jirnenes, Julio.—On public administration. 306
- 111 Lobato, J. Guadalupe.—Cerebral softening. 306
- 112 Lozano, J. M.—Civil code. 306
- 113 Lescanor, Antenor.—Agriculture. 306
- 114 Mender.—Narrow gauge in operation. 306
- 115 Maravedo, Salazar.—Military maneuvering. 306
- 116 Montes, R. Oca.—Ornithological essays. 306
- 117 Martinez, Victor.—History of the Mexican Revolution. 306
- 118 Montell, Duarte.—Personal and civil rights. 306
- 119 Martinez, Joaquim.—Modern and ancient history and mythology. 306
- 120 Martinez, Del Rio.—Cultivation of cotton. 306
- 121 Nunez, Angel.—Geography of Vera Cruz. 306
- 122 Orasco, Manuel Berra J.—Hydrographical chart of the valley of Mexico, and geography of language. 306
- 123 Perez, E. Juan.—Statistical almanacs. 306
- 124 Perez, Hernandez.—Geographical dictionary. 306
- 125 Prieto, Guillermo.—Political economy, and other works. 306
- 126 Pimental, Francisco.—Comparative and descriptive sketch of American physiology. 306
- 127 Peon, José Contreras.—Historical romances. 306
- 128 Rivas, José.—Code of urbanity. 306
- 129 Sierra, Justo.—Maritime law. 306
- 130 Povan, Partraleon.—Parliamentary history. 306
- 131 Zayas, Pablo.—Dictionary of Mexican legislation, civil code. 306
- 132 Federal Government.—Works upon the gubernatorial system, relating to the department of the interior, war, navy, public instruction, topography, and other scientific subjects. 306
- 133 Pharmaceutical Society of Mexico.—Pharmacopœia of the city of Mexico. 306
- 134 Larry Scientific Association.—Historical accounts and reports of the proceedings of the association. 306
- 135 Mexican Scientific Society.—Works on education and geography. 306
- 136 Society of Natural History.—"La Naturalista"—scientific newspaper. 306
- 137 Humboldt Society.—"Humboldt's Annals." 306

- 138 Department of Public Works.—Drainage of the valley of Mexico, topography of the federal districts of the city of Mexico, of the mountains of Pacheco, and of the palace of the archbishop of Mexico. 306

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- 140 Camacho, J., City of Mexico.—Musical compositions. 313
- 141 Ytuarte, J., City of Mexico.—Musical compositions. 313

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- 142 Loera, City of Mexico.—Frenometry. 320
- 143 Oropera, Guillermo.—Sensible scales. 320
- 144 Zenca, J. Estrada, City of Mexico.—Map. 335
- 145 Ramirez & Cuataparo, City of Mexico.—Maps. 335
- 146 Barcana, Mariano, City of Mexico.—Maps. 335

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- 148 Majira, Mrs. G.—Oil paintings. 410
- 149 Labisky, Mrs.—Water color painting, "coffee plant." 411

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- 150 Loreta, Pupils of Mrs. 422
a Engraving on wood.
b Lithographic work. 423

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- 151 Salazar, Miss.—Photographs. 430

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- 152 Ramirez, Miss Soledad.—Cottage with clay figures. 454
- 153 Alcocer, Miss Antonia.—Fruits and flowers in wax. 454

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- 154 State Government of Campeche, Campeche City.—Model of a vessel. 594
- 154a Cesar, José Maria, City of Mexico.—Model of steam vessel. 595

Arboriculture and Forest Products.

- 155 State Government of Vera Cruz.—Woods. 600
- 156 State Government of Puebla.—Woods. 600
- 157 State Government of Yucatan.—Woods. 600
- 158 State Government of Campeche.—Woods. 600
- 159 State Government of Mexico.—Woods. 600
- 160 State Government of Hidalgo.—Woods. 600
- 161 State Government of Colima.—Woods. 600

Agricultural, Animal, Vegetable Products.

- 163 State Government of Morelos.—Woods. 600
- 165 Jimenez, J., Cuernavaca City.—wood. 600
- 166 Vallarta, L. Y.—Aloes, aromatic Woods. 600
- 167 State Government of Oaxaca.—Indigo. 602
- 168 State Government of Colima.—Indigo. 602
- 169 Society of Natural History.—Gums and resins. 603
- 169^a State Government of Oaxaca, Oaxaca City.—Resins. 603
- 196^a State Government of Campeche, Campeche City.—Caoutchouc. 603
- Agricultural Products.**
- 170 Legarreta, A., Queretaro.—Cereals. 620
- 171 Cuevas Bros.—Wheat. 620
- 172 State Government of Puebla.—Cereals. 620
- 173 State Government of Hidalgo.
a Cereals. 620
b Coffee. 623
- 174 State Government of Morelos.—Cereals. 620
- 174^a Coahuilista Hacienda, State of Mexico.—Wheat. 620
- 175 Society of Natural History.—Cereals. 620
- 176 Cirilo, Mingo.—Córdoba coffee. 623
- 177 Cuantecomatan Co., Colima City.—Coffee. 623
- 178 Canedo, Señor.—Cigars and cigarettes. 623
- 179 Martinez de la Torre, City of Mexico.—Cigars and tobacco-leaf. 623
- 180 Gardida, Thomas.—Tobacco and cigars. 623
- 181 State Government of Vera Cruz.—Coffee. 623
- 182 State Government of Mexico.—Coffee. 623
- 182^a State Government of Yucatan.—Coffee. 623
- 182^b Ortiz, Anastacio, City of Mexico.—Tobacco. 623
- 183 Balsa Bros.—Cigars. 623
- 184 Lascurain & Co.—Cigars, cigarettes, etc. 623
- 185 Cainzo, Antonio.—Tobacco, etc. 623
- 186 Madrazos & Co.—Tobacco, etc. 623
- 187 Asylum for the Poor, State of Puebla.—Cigars, tobacco, etc. 623
- 188 Escobedo Gral, State of Michoacan.—Coffee. 623
- 189 Santiago Villa, Vera Cruz.—Córdoba coffee. 623
- Animal and Vegetable Products.**
- 190 Severino, Perez.—Pipitsa-huina (a new vegetable base). 650
- 190^a Garcia, Hilario, City of Mexico.—Skins. 652
- 191 State Government of Oaxaca.—Skins. 652
- 192 State of Colima.—Skins. 652
- 193 State of Puebla.—Skins. 652
- 194 State Government of Yucatan.—Skins. 652
- 195 State Government of Morelos.—Beeswax. 654
- 196 State Government of Hidalgo.—Beeswax. 654
- 196^a State Government of Oaxaca, Oaxaca City.—Beeswax. 654
- 196^b Preparatory School, Mexico City.—Beeswax. 654
- 196^c State Government of Hidalgo.—Vegetable wax. 654
- 196^d Society of Natural History, City of Mexico.—Vegetable wax. 654
- 197 State Government of Yucatan.—Oil of the insect niin, used for burnishing metallic instruments. 657
- 198 Torres, N., Puebla City.—Flour. 657
- 199 Society of Natural History.—Farina. 657
- 200 Ycazbalcata & Garcia.—Sugar. 659
- 201 State Government of Coahuila.—Preserved fruits. 659
- 202 State of Puebla.—Sugar. 659
- 203 Zerango Hacienda.—Sugar. 659
- 203^a State Government of Yucatan, Morida City.—Sugar. 659
- 204 Oacalco Hacienda, State of Morelos.—Sugar. 659
- 205 Goribar, Faustino.—Sugar. 659
- 206 Clara Santa Hacienda.—Sugar. 659
- 207 Atlihuyan Hacienda.—Sugar. 659
- 207^a Ferrer, Ignacio, City of Mexico.—Chocolate. 659
- 208 Campos, Fernande.—Feguilla liquor. 660
- 208^a State Government of Yucatan.—Sugar. 659
- 209 Paraiso Factory, Campeche Distillery.—Whisky. 660
- 210 Ylitzalituvú, Rivera.—Pulque (agave liquor). 660
- 211 Cortez, Agapito.—Wines. 660
- 212 Royo, Remegio, State of Coahuila.—Grape wines from Parras. 660
- 213 Barreda, C.—Alcohol. 660
- 214 Martinez, J. M.—Jehuacan Puebla wines. 660
- 215 Boesa, Simon.—Wines. 660
- 216 Society of Natural History.—Vegetable oils. 662
- 217 Canas, Eduardo.—Olive oil. 662
- 218 Morril, A.—Vegetable oils. 662
- 219 Jaspado, J.—Olive oil. 662
- 220 State Government of Yucatan.—Ricino oil. 662
- 221 Sayo, Vega de la, City of Mexico.—Vegetable oil. 662
- 221^a Cordera, Manuel, City of Mexico.—Vegetable oil. 662
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- 222 State Government of Morelos, Cuernavaca City.—Cotton. 662

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| <p>222^a State of Coahuila, Saltillo City.—Cotton. 665</p> <p>222^b Pereda, Blas, San Luis Potosi City.—Cotton. 665</p> <p>222^c State Government of Campeche, Campeche City.—Cotton. 665</p> <p>222^d State Government of Hidalgo.—Cotton. 665</p> <p>222^e Herrera, Alfonso, Mexico City.—Products of chayote plant. 666</p> <p>222^f State Government of Oaxaca, Oaxaca City.—Vegetable fibres. 666</p> <p>222^g Juarez, T., Texcoco City.—Hemp. 666</p> <p>223 State of Yucatan.—Fibres. 666</p> <p>224 Cabo, J. de Villa.—Strings and cords. 666</p> <p>225 State of Hidalgo.—Fibres of the Mexican maguey. 666</p> <p>226 Lopez, Miguel.—Cords from the fibres of the agave. 666</p> | <p>227 Society of Natural History.—Wild silk. 668</p> <p>Agricultural Engineering and Administration.</p> <p>228 Gomez, Z., City of Colima.—Agrometre. 680</p> <p>228^a Rui, Miguel.—Photographic views of agricultural works and farms. 683</p> <p style="text-align: center;">Horticulture.</p> <p>229 Preparatory School of the City of Mexico.—Botanical collection of the Valley of Mexico. 709</p> <p>230 Barcena, Marinana.—Botanical map of the State of Queretaro. 709</p> <p>231 Ocampo, Miss J.—Botanical collections. 709</p> <p>232 State Government of Mexico.—Botanical collections. 709</p> |
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For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

SPAIN.

(South of Nave, Columns 16 to 18.)

Chemical Manufactures.

Chemical Manufactures.

- 1 Community of Heirs of Añana, Salinas de Añana, Province of Alava.—Salt obtained by filtering and by evaporation. 200
- 2 Salines of Torre Vieja, Province of Alicante.—Salt. 200
- 3 Rosa Martinez, Joaquín de la, Berja, Province of Almería.—Syrup of protiodide of iron and of ferruginous Peruvian bark. 200
- 4 Zabala Ifiguer, Justo, Dalías, Province of Almería.—Syrup of ferruginous Peruvian bark and concentrated essence of sarsaparilla. 200
- 5 Padilla, Francisco, Almería.—Carbonate of lead. 200
- 6 Sureda & Villalonga, Juan, San José, Ibiza, Baleares.—Chloride of sodium. 200
- 7 Estruch & Co., Andrés, Barcelona.—Manure. 200
- 8 Tobella & Argila, Francisco, J., Hospital de Llobregat, Province of Barcelona.—Manure. 200
- 9 Medinaceli, Duchess, Cardona, Province of Barcelona.—Sal gemma. 200
- 10 Sanchez, Miguel, Barcelona.—Mineral and sea salt. 200
- 11 Pons, Bartolomé, Sans, Province of Barcelona.—Cream of tartar and tartar crystal. 200
- 12 Fortuny Bros., Barcelona.
 - a Magnesia, mustard paper, etc. 200
 - b Almond oil. 201
- 13 Vte Mondova, Juan, San Juan, Porto Rico.—Cocoa butter, orange-flower water, citrate of lime, ricinus oil, almond oil, coconut oil, essential oil of orange-flower and lemon. 200
- 14 Dominguez, Celestino, Guyana, Porto Rico.—Cocoa butter, castor oil, and tobacco pepper essence. 200
- 15 Tauriño, Juan, Toledo.—Remedy for deafness. 200
- 16 Formiguera, G., Barcelona.—Pastilles, extracts, oil, syrups, liniments, etc. 200
- 17 Ferrer & Batlle, Barcelona.—Chemical and pharmaceutical preparations. 200
- 18 Arola, A., & Domenech, Francisco, Barcelona.—Chemical and pharmaceutical preparations. 200
- 19 Boada, G., & Travessa, Gracia, Province of Barcelona.—Sulphate of copper, chloride of tin, sulphuric acid, nitric acid, etc. 200
- 20 Provincial Commission, Búrgos.—Calcined and black animal bone. 200
- 21 Regis Cisneros, Francisco, Búrgos.—Cream of tartar. 200
- 22 Bensusan, Antonio J., Puerto-Real, Province of Cádiz.—Sea salt. 200
- 23 Calle, Bernardo, M. de la, Cadix.—Sea salt. 200
- 24 Hidalgo y Berjano, Eduardo, Sanlúcar de Barrameda, Province of Cádiz.—Sea salt. 200
- 25 Forner Sales, Domingo, Burriana, Province of Castellon.—Orange flower and orange-flower water. 200
- 26 Corporation of Minglanilla, Province of Cuenca.—Sal gemma. 200
- 27 Gamboa y Calvo, José, Villalcayado, Province of Guadalajara.—Salt. 200
- 28 Muñoz, Marcelino, Imon, Province of Guadalajara.—Salt. 200
- 28a Marin, Manuel, Córdoba.—Essence of sarsaparilla, extract and syrup of eucalyptus, cod-liver oil, balsam opodeldoc, etc. 200
- 29 Leon Teruel, José, Huelva.—Salt obtained by evaporation. 200
- 30 Lopez de Codes, Tomás, Isle of Cristina, Province of Huelva.—Chemical guano. 200
- 31 Tapia y Pereira, Pedro, Isle Cristina, Province of Huelva.—Artificial guano. 200
- 32 Soriano, Aniceto, Jaen.—Salt obtained by evaporation. 200
- 33 Tiburcio Escabias, José, Jaen.—Salt. 200
- 34 Miguel Garcia, Manuel de, Jaen.—Salt. 200
- 35 Mas, Ramon, Lérida.—Barilla (impure soda). 200
- 36 Arteche, Angel Maria, Azofra, Province of Logroño.—Inalterable carbonate of iron. 200
- 37 Baanante, Juan, Chantada, Province of Lugo.—Mustard and cantharides powder. 200
- 38 Armesto Vinuesa, Francisco, Mondoñedo, Province of Lugo.—Peat. 200
- 39 Delf Factory of Sargadelos, Cerro, Province of Lugo.—Peat. 200
- 40 Jorge de la Peña, José, Lugo.—Peat. 200
- 41 Puerta, Gabriel de la, Madrid.—Emetic tartar. 200
- 42 Canales, Juan Bautista, Málaga.—Essence of lemon, citric acid. 200
- 43 Fuentes & Sons, Palencia.—Blister. 200
- 44 Escarpiso, Lorenzana, Augusto, Cangas, Province of Pontevedra.—Antiscorbutic and odontalgic elixir. 200
- 45 Gonzalez, Domingo Cecilio, Salamanca.—Nitrate of ammonia. 200

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- 46 Santiago Fuentes, Ignacio, Salamanca.—Chromic acid, arseniate of iron, etc. 200
- 47 Villar, José, Salamanca.—Pharmaceutical preparations. 200
- 48 Delgado, Joaquín, Seville.—Inalterable syrups. 200
- 49 Vinet, Troviño, & Co., Seville.—Citric acid, hyposulphate of soda, etc. 200
- 50 Monge & Sans, Bonifacio, Soria.—Digital, extract of digital, digitaline, essence of sarsaparilla, etc. 200
- 51 Cuchi y Deixens, Tomás, Tarragona.—Arsenic, extract of tar, and meat in powder. 200
- 52 Eyries, Agustín, Valladolid.—Phosphate of lime and nitrate of soda. 200
- 53 Flor Carenou, & Tur, Zaragoza.—Extract of liquorice. 200
- 54 Díaz & Acebedo, Cleto, Havana, Cuba.—Preservative to prevent oxidizing of metals. 200
- 55 Quesada & García, Almería.—Soap. 201
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PHILIPPINE ISLANDS.

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- 5 Bandeira, A.S.B.M., Setubal.—Salt. 200
- 6 Branca, Anna Delphina, Alcacer do Sal.—Salt. 200
- 7 Bivar, Jeronymo, d'A. C. de, Algarve.—Salt. 200
- 8 Cooke & Co., Figueira da Foz.—Salt. 200
- 9 Drack, Jr., José R. G., Lisbon.—Pharmaceutical preparations. 200
- 10 Creswell & Co., Lisbon.—Salt. 200
- 11 Castello Branco, João da S. F., Villa Franca de Xira.—Salt. 200
- 12 Deleghy Bros., Lisbon.—Chemicals. 200
- 13 Franco, Pedro Augusto, Belem.—Pharmaceutical preparations. 200
- 14 Figueiredo, Joaquim, Avis.—Pharmaceutical preparations. 200
- 15 Ferraz, José Libertador Magalhães, Coimbra.—Pharmaceutical preparations. 200
- 16 Gallano, Manuel d'Asses, d'Oliveira, Oporto.—Pharmaceutical preparations. 200
- 17 Gragera, Antonio Maria Mendes, Villa Nova de Reguengos.—Pharmaceutical preparations. 200
- 18 Judice, V. A. J., Mexilhoeira.—Salt. 200
- 19 Jesus, Manuel Vicente de, Lisbon.—Pharmaceutical preparations. 200
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- 21 Leite, Francisco de Paula, Alcacer do Sal.—Salt. 200
- 22 Lima, Guilherme A. E., Lisbon.—Pharmaceutical preparations. 200
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- 25 Pires, Joao Luiz, Lisbon.—Salt. 200
- 26 Pedrosa, DeHaria José Lopes, Figueira.—Salt. 200
- 27 Pires, Joao de Jesus, Lisbon.—Patent medicines. 200
- 28 Rei, Jose Joaquim, Lisbon.—Pharmaceutical preparations. 200
- 29 Salgueiro, Nuno Freire Dias, Oporto.—Pharmaceutical preparations. 200
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- 31 Silva, Silverio Augusto Pereira da, & Francisco Antonio, Marques de Moura, Aveiro.—Salt. 200
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Chemical Manufactures.

- | | | | |
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| 5 Adana, Government of, Adana.—Salt. | 300 | 34 Chaul Kepka, Bérat, Yanina.—Olive oil. | 301 |
| 6 Bigdé, Government of, Koniah.—Mineral salt. | 300 | 35 Chamlotte, Malatia, Diarbekir.—Opium oil. | 301 |
| 7 Canea, Government of, Crete.—Sea salt. | 300 | 36 Costa, Prévészé, Yanina.—Soap. | 301 |
| 8 Djidé, Government of, Hidjäs.—Salt. | 300 | 37 Masalaki, Dimitri, Canea, Crete.—Oil of sweet and bitter almonds. | 301 |
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| 11 Toutous, Government of, Sivas.—Nitric. | 300 | 40 Samos, Government of.—Soap and olive oil. | 301 |
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| 15 Seit, Hadji, Koniah.—Crude potash. | 300 | 44 Yehrapalaki, Hadji, Nicolas, Lachite, Crete.—Oil of myrtle. | 301 |
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| 21 Pano Mamatti, Prévészé, Yanina.—Salt. | 300 | 50 Pedros, Diarbekir.—Olive oils. | 301 |
| 22 Suleiman, Prévészé, Yanani.—Salt. | 300 | 51 Pia Oghli, Smyrna, Aydin.—Soap. | 301 |
| 23 Saidne, Erzeroum.—Salt. | 300 | 52 Tanassi, Aydonat, Yanina.—Olive oil. | 301 |
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- 1145 Houllé, Government of, Bagdad.—Lentils, vetch, and beans. 621
- 1146 Kara Issalé, Government of, Adana. a Vetch. 621
b Sage. 623
- 1147 Samos, Government of. a Vetch. 621
b Anise seed. 624
- 1148 Saroukhan, Government of, Aydin. a Lentils. 621
b Madder root. 622
c Mustard seed. 624
- 1149 Mehemed, Hadji, Diarbekir.—Roast peas. 621
- 1150 Isaac, Hodja, Aleppo.—Lentils, peas, and masch. 621
- 1151 Ismail Agha, Koniah, Koniah.—Vetch. 621
- 1152 Mehemed Ali Agha, Saradjik, Dardanelles.—Beans, gray peas. 621
- 1153 Ahmed, Erzeroum.—Lentils, kidney beans, and peas. 621
- 1154 Aghoba, Kingnessa, Adana.—Lentils. 621
- 1155 Ali Ousta, Koniah, Koniah.—Kidney beans. 621
- 1156 Charchou Akassi, Diarbekir.—Lentils. 621
- 1157 Christo, Palatnos, Yanina.—Beans. 621
- 1158 Kachomla, Christo, Tdomane, Yanina.—Kidney beans. 621
- 1159 Diaba, Heudeurlé, Adana.—Kidney beans. 621
- 1160 Giorki, Aleppo. a Vetch. 621
b Kuchené seed. 624
- 1161 Mehemed Seid, Angora. a Kidney beans. 621
b Cumin. 623
- 1162 Molah Ahmed, Adana, Adana.—Beans. 621
- 1163 Sidmaki, Sfakia, Crete.—Dried beans. 621
- 1164 Fetou, Aleppo.—Kidney beans. 621
- 1165 Yorghanodhaki, Sfakia, Crete.—Vetch. 621
- 1166 Valah, Vandiria, Sfakia, Crete.—Lentils. 621
- 1167 Yousseouf Mamor, Diarbekir.—Kidney beans. 621
- 1168 Yousseouf Manoc, Aleppo.—Beans. 621
- 1169 Akhati, Giorki, Aleppo.—Soapwort root. 622
- 1170 Moustapha, Hadji, Marach, Aleppo.—Scammony. 622
- 1171 Hazrou, Aleppo.—Coriander seed. 623
- 1172 Imperial Administration, Constantinople.—Tobacco. 623
- 1173 Kandi Bros., Erguiré, Yanina.—Snuff. 623
- 1174 Mehemed, Koniah, Koniah.—Cumin. 623
- 1175 Nassou Tarrouchan, Ichkodra, Monastir.—Leaf tobacco. 623
- 1176 Omer Oglou Kassan, Tchan, Dardanelles.—Leaf tobacco. 623
- 1177 Rahimin David, Tripoli, Tripoli.—Cumin. 623
- 1178 Ramazan, Effendi, Smyrna, Aydin.—Tobacco. 623
- 1179 Abil, Aleppo.—Snuff. 623
- 1180 Djourbachi, Antolu, Dardanelles, Dardanelles.—Cumin and anise. 623
- 1181 Bedros, Antoine, Philadelphia, Pa.—Turkish tobacco. 623
- 1182 Bekir Bey, Marach, Aleppo.—Scammony root. 623
- 1183 Costanti, Aydonat, Yanina.—Snuff. 623
- 1184 Aleppo, Government of.—Tobacco. 623
- 1185 Amassia, Government of, Sivas.—Tobacco. 623
- 1186 Kenidje, Government of, Salonica.—Tobacco. 623
- 1187 Haakanorich Ali, Korimdja, Bosnia.—Tobacco. 623
- 1188 Manoli Calergui, Papa, Canea, Crete.—Leaf tobacco. 623
- 1189 Takssim Effendi, Tchataldja, Yanina.—Tobacco. 623
- 1190 Tokatlou, Trebizond.—Leaf tobacco. 623

Agricultural, Animal, and Vegetable Products.

- 1191 Yani, Oglou Andin, Angora, Angora.—Tobacco. 623
- 1192 Youssouf, Chaouch, Nardat, Yanina.—Tobacco. 623
- 1193 Youssouf, Chaouch, Tchataidja, Yanina.—Tobacco. 623
- 1194 Manouk, Youssouf, Aleppo.—Tobacco. 623
- 1195 Kayod, Hussein, Mardin, Diarbekir.—Fennel seed. 624
- 1196 Moustapha Effendi, Koniah, Koniah.—Hemp seed. 624
- 1197 Kouyoun Oglou, Andonie.—Seed. 624
- 1198 Yousouf, Hadji, Diarbekir.—Palma-christi seeds. 624
- 1199 Kazikli, Government of, Aydin.—Anise seed. 624
- 1200 Cus-Kuri, Government of, Dardanelles.—Dolique seed. 624
- 1201 Djbra Gaza, Aleppo.—Fennel seed and cumin. 624
- 1202 Ali Bin Mehemed, Tripoli, Tripoli.—Lucern seed. 624
- 1203 Youssouf, Aleppo.—Hemp, palma-christi, meckineche, melon, and watermelon seeds. 624
- 1204 Tarai, Djemetre, Bokeva, Monastir.—Flax and hemp seed. 624
- 1205 Maneza, Government of, Aydin.—Flaxseed. 624
- 1206 Adana, Government of.—Dolique seed. 624
- Land Animals.**
- 1207 Mazloum Aghiah, Constantinople.—Insects. 638
- Water Animals, Fish Culture and Apparatus.**
- 1208 Ali Zotte, Volonia, Yanina.—Coral. 645
- Animal and Vegetable Products.**
- 1209 Lachite, Government of, Crete.—Sponges. 650
- 1210 Themeli, N., New York, N. Y.—Sponges. 650
- 1211 Mansour, Hadji, Tripoli, Tripoli.—Sponges. 650
- 1212 Djidé, Government of, Hidjaz.—Sponges. 650
- 1213 Gallinos, Rhodes, Dardanelles.—Sponges. 650
- 1214 Théophani, Nioforaki, Canea, Crete. 651
a Cheese. 651
b Leather and skins. 652
c Honey. 654
d Dried cherries. 656
- 1215 Minassian Miguerdji, Tokat, Sivas.—Cheese. 651
- 1216 Markora, Salonica.—Cheese. 651
- 1217 Mikahi Agha, Adrianople.—Lamb skins. 652
- 1218 Mikaél, Kotchissar, Castamouni.—Beaver skin. 652
- 1219 Mehameda, Dardanelles.—Morocco. 652
- 1220 Starri, Oglou, Kotchissar, Castamouni.—Marten skin. 652
- 1221 Nichan, Sivas, Sivas.—Skins. 652
- 1222 Nely, Ali, Marach, Aleppo.—Morocco. 652
- 1223 Moustapha, Ourpha, Aleppo.—Leather. 652
- 1224 Moustapha, Erzeroum.—Leather, morocco, etc. 652
- 1225 Mohadjeri Nahe, Adana, Adana.—Gazelle skin. 652
- 1226 Abdul Medjid, Vesalomon.—Goat skin. 652
- 1227 Abdoulah, Aroubirje, Zoubei, Bagdad.—Morocco. 652
- 1228 Seyfoullah, Roostchook, Danube.—Leather. 652
- 1229 Sari Faki Moustapha, Marach, Aleppo.—Morocco. 652
- 1230 Safran Bolu, Zaferemboli, Castamouni.—Morocco. 652
- 1231 Panoucha, Yanina.—Leather. 652
- 1232 Osman Agha, Koniah.—Leather. 652
- 1233 Mehemed, Ousta, Boschir, Koniah.—Leather. 652
- 1234 Omer, Ousta, Piseren, Monastir.—Morocco. 652
- 1235 Ohannés Agha, Angora.—Angora goat skins. 652
- 1236 Ahmed Agha, Koniah.—Leather and morocco. 652
- 1237 Yanaki Kalviro, Yanina.—Goat skin. 652
- 1238 Youssouf, Caraman, Koniah.—Morocco. 652
- 1239 Vasali Borbo, Yanina.—Morocco. 652
- 1240 Tosty, Galota, Chio, Dardanelles.—Leather. 652
- 1241 Chinopli, Thomas, Teralu, Yanina.—Sheep skin. 652
- 1242 Sirkilé, Olan Andia, Angora.—Weasel skin. 652
- 1243 Sirch, Oglou, Andon, Angora.—Wolf, weasel, and fox skin. 652
- 1244 Atanach, Dardanelles, Dardanelles.—Sheep skin. 652
- 1245 Andria, Trebisond.—Grebe skins. 652
- 1246 Andon, Chio, Dardanelles.—Morocco. 652
- 1247 Anastach, Kangre, Castamouni.—Goat skin. 652
- 1248 Ali, Omer, Bigha, Dardanelles.—Deer skin. 652
- 1249 Ali, Salonica.—Leather. 652
- 1250 Ali, Mosul, Bagdad.—Beaver, fox, and wolf skin. 652
- 1251 Ahmed, Ousta, Castamouni, Castamouni.—Angora goat skin. 652
- 1252 Zelo, Christo, Yanina.—Red morocco. 652
- 1253 Cherbedji Mehemed, Marach, Aleppo.—Goat and sheep skin. 652
- 1254 Moussa Agha, Cheik, Diarbekir.—Goat and sheep skin. 652
- 1255 Chaban Oglou Mehemed, Koniah, Koniah.—Cat skin. 652

Animal and Vegetable Products.

- 1256 Cassal, Adana, Adana.—Goat and sheep skin. 652
- 1257 Cafak, Abdoullah, Marach, Aleppo.—Morocco. 652
- 1258 Bekir Agha, Sivas, Sivas.—Leather, morocco, and skins. 652
- 1259 Balto Oglou Yousseuf, Guengnek, Castamouni.—Morocco. 652
- 1260 Glano, Giorki, Yanina.—Skin. 652
- 1261 Eyoup, Ourpha, Aleppo.—Goat and sheep skin. 652
- 1262 Echef Effendi, Trebizond.—Morocco. 652
- 1263 Ebouker, Chérif, Tripoli, Tripoli.—Sheep skin. 652
- 1264 Dcheban Oglou Mehemed, Koniah.—Fox skin. 652
- 1265 Corporation of Curriers, Smyrna.—Leathers, skins, and morocco. 652
- 1266 Dauli, Christo, Yanina.—Morocco. 652
- 1266a Corporation of Curriers, Damascus.—Leather and morocco. 652
- 1267 Calman, Government of, Syria.—Goat skin. 652
- 1268 Cherishor, Government of, Bagdad.—Lamb skin. 652
- 1269 Bourd, Government of, Bagdad.—Morocco. 652
- 1270 Ohanès Agha, Marach, Aleppo.—Ounce and weasel skins. 652
- 1271 Bagdad, Government of.—Buffalo skin and morocco. 652
- 1272 Moustapha, Hadji, Marach, Aleppo.—Skins. 652
- 1273 Adana, Government of.—Roebuck and calf skins. 652
- 1274 Godchè, Erondi, Prévészé, Yanina.—Leather, morocco. 652
- 1275 Gulbin, Oglou Mehemed, Koniah, Koniah.—Jackal skin. 652
- 1276 Tahif, Government of, Hidjas.
a Sheep and goat skin. 652
b Honey. 654
- 1277 Kara Issali, Government of, Adana.—Deer skin. 625
- 1278 Feulgehete, Government of, Syria.—Deer skin. 652
- 1279 Erseroum, Government of.
a Goat skin, morocco. 652
b Down. 653
- 1280 Diarbekir, Government of.—Leather and morocco. 652
- 1281 Dardanelles, Government of.—Goat skin. 652
- 1282 Damascus, Government of, Syria.
a Sheep skin. 652
b Honey and wax. 654
- 1283 Constantinople, Government of.—Morocco and other leathers. 652
- 1284 Manik, Hadji, Erseroum.—Fox skin. 652
- 1285 Ismail Effendi, Hadji, Koniah, Koniah.—Otter skin, etc. 652
- 1286 Ismail, Hadji, Aintab.—Calf skin, leather, and morocco. 652
- 1287 Ibrahim, Hadji, Angora.—Leather and morocco. 652
- 1288 Damiano, Hadji, Bosnia.—Bear, fox, weasel, badger, and marten skins. 652
- 1289 Amparson, Hadji, Trebizond.—Jackal, fox, weasel, lamb, and sable skins. 652
- 1290 Ahmed, Hadji, Angora.—Goat and sheep skin. 652
- 1291 Achmet Agha, Hadji, Angora.—Lamb skin. 652
- 1292 Rafoul, Hodja, Marach, Aleppo.—Wildcat, fox, otter, and jackal skins. 652
- 1293 Hassan Oglou Ahmed, Dardanelles, Dardanelles.—Wildcat, fox, beaver, weasel, and jackal skins. 652
- 1294 Hassan, Ousta, Castamouni.—Morocco. 652
- 1295 Harani Oglou, Castamouni, Castamouni.—Ounce skin. 652
- 1296 Haho, Babanoun Hamed Agha, Koniah.—Morocco. 652
- 1297 Yassin, Hadji, Saret, Diarbekir.—Leather. 652
- 1298 Rouchen, Hadji, Trebizond.—Goat and calf skins. 652
- 1299 Omer Agha, Hadji, Diarbekir.—Morocco. 652
- 1300 Moustapha Ahmoud, Hadji, Tripoli, Tripoli.—Morocco, tanned skins, etc. 652
- 1301 Kurdju, Hadji, Diarbekir.—Beaver skin. 652
- 1302 Karabet Agha, Erseroum.—Weasel and wolf skins. 652
- 1303 Kara, Poutamo, Prévészé, Yanina.—Goat and sheep skin. 652
- 1304 Ismail, Agha, Boeschir, Koniah.—Leather. 652
- 1305 Ismail, Hadji, Marach, Aleppo.—Leather. 652
- 1306 Isaac, Aleppo, Aleppo.—Lamb skin. 652
- 1307 Ipsilanti & Co., Samos, Castamouni.—Leather. 652
- 1308 Ibrahim, Uskup, Monastir.—Morocco. 652
- 1309 Hussein Effendi, Salonica.—Tanned hides and morocco. 652
- 1310 Mehemed Emin, Mosul, Bagdad.—Morocco. 652
- 1311 Mehemed Effendi, Adrianople.—Leather, morocco, goat, and calf skins. 652
- 1312 Mehemed, Koniah, Koniah.—Wolf skin. 652
- 1313 Masloum Agha, Candia, Crete.—Goat skins and morocco. 652
- 1314 Salomon, Salonica.
a Goat and lamb skins. 652
b Virgin wax. 654
c Cherry, orange, apricot, prune, verjuice, and gourd marmalade. 656
d Brandy, wine, and vinegar. 660
- 1315 Maroquin, Dardanelles.—Morocco. 652
- 1316 Kurjut Casmat, Diarbekir.—Fox and weasel skins. 652
- 1317 Piseren, Government of, Monastir.—Morocco. 652
- 1318 Abdoullah Ousta, Angora.—Leather. 652

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-43.

Animal and Vegetable Products.

- 1319 Ana Bini, Tanasse, Sarret, Diarbekir.—Wax. 654
- 1320 Yeni Ahmed, Chür, Yanina.—Wax. 654
- 1321 Ahmed Agha, Lapseki, Dardanelles.—Yellow wax. 654
- 1322 Sahalim Bacbac, Tripoli, Tripoli.—Honey. 654
- 1323 Derbabian, Pedros, Sivas, Sivas.—Yellow wax 654
- 1324 Ohannès, Son of Varcha, Angora.—Honey. 654
- 1325 Moussin Effendi, Koniah, Koniah.—Yellow wax. 654
- 1326 Ahmed, Aintab, Aleppo.—Honey and wax. 654
- 1327 Samos, Government of. a Honey. 654
b Wine and brandy. 660
- 1328 Medina, Government of, Hidjaz.—Honey. 654
- 1329 Cherif Effendi, Trebizond. a Honey. 654
b Gourd, pear, and rose marmalade. 656
c Mulberry vinegar. 660
- 1330 Arpadji Mahmoud Agha, Adana, Adana.—Wax. 654
- 1331 Lefterimo, Aposthol, Tirala, Yanina.—Honey. 654
- 1332 Andonaki, Angora.—Wax. 654
- 1333 Pisereken, Government of, Monastir.—Crude wax. 654
- 1334 Ali Zotte, Golos, Yanina.—Yellow wax. 654
- 1335 Mahmoud Agha, Adana, Adana.—Honey. 654
- 1336 Keranche Oglou, Kotchissar, Castamouni.—Wax. 654
- 1337 Hussein Dédé, Kilid-Bahar, Dardanelles.—Honey. 654
- 1338 Haktar Mehemed, Aleppo.—Yellow wax. 654
- 1339 Osman, Hadji, Sarret, Diarbekir.—Honey. 654
- 1340 Volonia, Government of, Yanina.—Honey and wax. 654
- 1341 Suleimaneeyah, Government of, Bagdad.—Wax. 654
- 1342 Smyrna, Government of, Aydin. a Honey and wax. 654
b Dried grapes, raisins. 656
c Wine. 660
- 1343 Abdourahman, Erzeroum.—Yellow wax. 654
- 1344 Abdourahman, Zubei, Yemen.—Wax. 654
- 1345 Catari, Giorki, Golos, Yanina.—Olives. 656
- 1346 Ali Oglou Moussa.—Dried molluscs. 656
- 1347 Ahmed Agha, Aleppo.—Raisins. 656
- 1348 Yussuf Sarret, Diarbekir.—Raisins. 656
- 1349 Tetoullah Effendi, Darende, Sivas.—Prunes. 656
- 1350 Serdar, Hassan Oglou Hussin, Canaa, Crete.—White and black raisins. 656
- 1351 Seid, Mehemed Agha, Angora.—Dried apples, prunes, cherries, apricots. 656
- 1352 Pembedje, Oglou Moustapha, Mardin, Diarbekir.—Prunes. 656
- 1353 Koyoun, Andonik, Angora. a Dried and salt beef, sausages. 656
b Brandy, wine, and vinegar. 660
- 1354 Kirkor, Avakir, Diarbekir.—Mulberry paste. 656
- 1355 Hussein, Gaat, Mardin, Diarbekir.—Prunes. 656
- 1356 Haskanorich, Ali, Korimdja, Bosnia.—Prunes. 656
- 1357 Osman, Hadji, Koniah, Koniah.—Raisins. 656
- 1358 Ali, Hadji, Aleppo.—Dried prunes, quinces, cherries, and apricots. 656
- 1359 Zaferampolo, Government of, Castamouni.—Dried prunes. 656
- 1360 Nitch, Government of, Danube.—Prunes. 656
- 1361 Nasli, Government of, Aydin.—Dried figs. 656
- 1362 Mikali, Nicolaidi, Canaa, Crete.—Orange, apple, orange blossom, cherry, and pear marmalade. 656
- 1363 Mikail, Aleppo. a Dried prunes, cherries, apricots, raisins, and apples. 656
b Mastic. 660
- 1364 Merkiosa, Mamor, Diarbekir.—Dried mulberries. 656
- 1365 Mehemed Aiché, Tripoli, Tripoli.—Soup and vegetable paste, vermicelli. 656
- 1366 Mehemed, Malatia, Diarbekir.—Mulberry paste. 656
- 1367 Mazloun, Aghiah, Constantinople.—Trehala and trehalose pastes. 656
- 1368 Maki Yani, Chio, Dardanelles.—Mastic, orange, rose, and lemon-blossom confitures. 656
- 1369 Mark, Samos, Samos.—Muscat raisins. 656
- 1370 Kournik Ali Agha, Kangre, Castamouni.—Dried apricots. 656
- 1371 Pedros, Mihalgazi, Castamouni.—Raisins. 656
- 1372 Over Agha, Malatia, Diarbekir.—Raisins. 656
- 1373 Osman Bin Mohamed, Korimdja, Bosnia.—Prunes. 656
- 1374 Omer Djerbali, Tripoli, Tripoli.—Vermicelli and soup paste. 656
- 1375 Moustapha, Malatio, Diarbekir.—Dried peaches. 656
- 1376 Ateuf Dédé, Broussa, Broussa.—Angelica-root marmalade 656
- 1378 Widin, Government of, Danube. a Sausages and smoked beef tongues. 656
b Raspberry wine. 660
- 1379 Moustapha Agha, Adana, Adana.—Raisins. 656
- 1380 Ahmed, Erzeroum.—Dried prunes. 656
- 1381 Mehemed Djebali, Tripoli, Tripoli.—Semoule flour. 657
- 1382 Koudour Hadji, Aleppo.—Grenade syrup. 659

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Vegetable Products, Wines, Textile Substances.

- 1383 Ohannes, Diarbekir.—Grape syrup. 659
- 1384 Central Drug Store, Constantinople.—Fruit syrups, etc. 659
- 1385 Ispiro, Salonica.—Orange, cherry, and grenade syrups. 659
- 1386 Raftopoulos, Nicolas.—Mint, sage, and almond liquors. 660
- 1387 Kirkor Effendi, Erzeroum.—Alcohol. 660
- 1388 Karabet, Diarbekir.—Orange, rose, juniper, and other brandies. 660
- 1389 Ychrapalaki, Hadji, Nicolas, Retimo, Crete.—Mulberry brandy. 660
- 1390 Gulbing Oglou Kakout, Koniah, Koniah.—Wine and brandy. 660
- 1391 Salomon, Gumuldjin, Salonica.—Wine. 660
- 1392 Retimo, Government of, Crete.—Wine and brandy. 660
- 1393 Monastir, Government of.—Wines. 660
- 1394 Gostcho Djivaré, Prévész, Yanina.—Wine. 660
- 1395 Vafiadi Giorki, Salonica.—Wine. 660
- 1396 Distillery of Zahari, Piseren, Monastir.—Brandy. 660
- 1397 Tountcha Litché, Tirnova, Yanina.—Wine. 660
- 1398 Tomochordo, Piseren, Monastir.—Wine. 660
- 1399 Tietora, Theodore, Samos.—Muscat wine. 660
- 1400 Théphasaki Ysiako, Canca, Crete.—White wine. 660
- 1401 Stamadi Marneraki, Lachite, Crete.—Red wines. 660
- 1402 Pereno Papa, Adana, Adana.—Brandy. 660
- 1403 Pefkiades, John, Samos.—Muscat wine. 660
- 1403a Yussep, Tokat, Sivas.—Rose mastic. 660
- 1404 Papaz Oglou, Salonica.—White wine. 660
- 1405 Nicoloreuzi Bros., Samos.—Muscat wine. 660
- 1406 Yanaki, Nicolas, Ile of Bousdja, Dardanelles.—Wine and vinegar. 660
- 1407 Manoli Muzé, Tirnova, Yanina.—Vinegar. 660
- 1408 Direction of the Vineyards Pacha Liman, Broussa.—Red and white wines, cognac. 660
- 1409 Leonisaki, Dimitri, Canca, Crete.—Brandy. 660
- 1410 Cafejedaki, John, Samos.—Alcohol and wines. 660
- 1411 Bodou Agha, Diarbekir.—Wine. 660
- 1412 Bano, Adana, Adana.—Wine. 660
- 1413 Bedré, Anton, Aleppo.—Vinegar. 660
- 1414 Andin Chako, Narda, Yanina.—Mulberry brandy. 660
- 1415 Yussep, Tokat, Sivas.—Rose vinegar and brandy. 660
- 1416 Yani, Lachite, Crete.—Mulberry brandy. 660
- 1417 Yani, Pappa Antoonaki, Lachite, Crete.—Grape brandy. 660
- 1418 Mehanedji, Foly, Candia, Crete.—Rose brandy and wine. 660
- 1419 Manoli Prisi, Candia, Crete.—Wine and white brandy. 660
- 1420 Ipsamarki Yani, Ile of Bousdja, Dardanelles.—Brandy. 660
- 1421 Mark, G. L., Samos.—Brandy and wine. 660
- 1422 Missir, Joseph, Samos.—Muscat wine. 660
- 1423 Tousseano, Diarbekir.
a Vinegar. 660
b Mint oil. 662
- 1424 Moustapha, Dardanelles.—Coffee biscuits. 661
- 1425 Ipsamarki Yani, Chio, Dardanelles.—Vine-branch oil. 662
- 1426 Ahmed, Antakia, Aleppo.—Almond and palma-christi oils. 662
- 1427 Cherif Oglou Mehemed, Philippopolis, Adrianople.—Wild thyme and mint oil. 662
- 1428 Hetoulat, Diarbekir.—Batom oil. 662

Textile Substances of Vegetable or Animal Origin.

- 1429 Husseln Agha, Adana, Adana.—Cotton. 665
- 1430 Bekir, Hadji, Adana, Adana.—Cotton, cotton bolls. 665
- 1431 Uskup, Government of, Monastir.
a Cotton. 665
b Spun hemp. 666
c Cocoons. 668
- 1432 Saroukhan, Government of, Aydin.—Cotton. 665
- 1433 Mosul, Government of, Bagdad.
a Cotton. 665
b Cocoons. 668
- 1434 Kerbella, Government of, Bagdad.
a Cotton. 665
b Indian hemp. 666
c Wool. 667
- 1435 Feulgehete, Government of, Syria.
a Cotton. 665
b Wool. 667
- 1436 Etlep, Government of, Aleppo.—Cotton and cotton bolls. 665
- 1437 Théophani, Nicoforaki, Canca, Crete.
a Cotton seed. 665
b Spun flax. 666
c Wool. 667
d Blue and yellow cocoons. 668
- 1438 Salomon, Salonica.
a Cotton. 665
b Tow. 666
c Wool. 667
- 1439 Pano Mamatti, Prévész, Yanina.—Cotton. 665
- 1440 Moussa, Palatnos, Yanina.—Cotton bolls. 665
- 1441 Mardili, Oustidi, Diarbekir.—Crude cotton. 665
- 1442 Laz Osman, Kangre, Castamouni.—Cotton. 665
- 1442a Kozon, Andonaki, Angora.—Cotton. 665

For classes of exhibits, indicated by numbers at end of entries, see Classification pp. 27-45.

Textile Substances of Animal and Vegetable Origin.

- 1443 Ismail Effendi, Sullé, Koniah.—Cotton. 665
- 1444 Ibrahim Effendi, Gueugnek, Castamouni.—Cotton. 665
- 1445 Amassia, Government of, Sivas. a Cotton. 665
b Indian hemp. 666
- 1446 Dimitri, Giorgaki, Prévésé, Yanina.—Cotton. 665
- 1447 Dimitri, Constanti, Tirala, Yanina.—Cotton. 665
- 1448 Cazi, Agha, Caraman, Koniah.—Cotton bolls. 665
- 1449 Astadj, Narcisse, Aleppo.—Cotton. 665
- 1450 Djourbachi, Antolu, Maidos, Dardanelles.—Cotton. 665
- 1451 Andon, Constanti, Palatnos, Yanina.—Cotton. 666
- 1452 Tarako, Uskup, Monastir.—Spun flax. 666
- 1453 Mehemed, Marach, Aleppo.—Hemp. 666
- 1454 Damascus, Government of, Syria.—Hemp. 666
- 1455 Maimoun, Tripoli, Tripoli.—Wool. 667
- 1456 Kiyork, Dellale Oglou, Esiné, Dardanelles.—Wool. 667
- 1457 Kirkora, Adana, Adana.—Wool. 667
- 1458 Khalil Agha, Ourpha, Aleppo.—Wool. 667
- 1459 Hadji, Koniah, Koniah.—Wool. 667
- 1460 Volonia, Government of, Yanina.—Wool. 667
- 1461 Suleimaneeyah, Government of, Bagdad. a Wool. 667
b Goat and other hair. 669
- 1462 Smyrna, Government of, Aydin. a Wool. 667
b Cocoons. 668
- 1463 Youssouf, Aleppo, Aleppo.—Wool. 667
- 1464 Tigour Ahmed, Kangre, Castamouni.—Wool. 667
- 1465 Teftif Oglou Moussa, Koniah, Koniah.—Wool. 667
- 1466 Starri, Kangre, Castamouni.—Wool. 667
- 1467 Selim Kohi, Ichkodra, Monastir.—Wool. 667
- 1468 Panor Mamatti, Volonia, Yanina.—Wool. 667
- 1469 Moustapha, Hadji, Painbé Zade, Esiné, Dardanelles.—Black wool. 667
- 1470 Mehemed Agha, Koniah, Koniah.—Wool. 667
- 1471 Couyoun Oglou Andon, Angora.—Wool. 667
- 1472 Cherif Agha, Ezeroum.—Wool. 667
- 1473 Zade Moustapha, Cheik, Kangre, Castamouni.—Wool. 667
- 1474 Avadjan, Sivas, Sivas.—Sheep's wool. 667
- 1475 Arabe Mehemed, Mardin, Diarbekir.—Wool. 667
- 1476 Anagnosti, Pappadiaki, Lachite, Crete.—Wool. 667
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- 1483 Estur Oglou Estur, Tias, Adana.—Cocoons. 668
- 1484 Banouch, Son, Kiranié, Yanina.—Cocoons. 668
- 1485 Avram, Adrianople.—Japanese cocoons. 668
- 1486 Yanaki, Tdomane, Yanina.—Cocoons. 668
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 - 2 Lepeshkin, Nicolas, Moscow. 200
 - a Chemical products.
 - b Dyes, pigments of vegetable and animal extraction.
 - 3 Ooshkoff, Peter, Elaboog, Government of Viatka.—Yellow chrome, blue copperas, and alum. 200
 - 4 Poel, Alexander, St. Petersburg.—Oils, volatile extracts from the wild rosemary (sedum polustre). 200
 - 5 Filosofoff, Basil, & Co., Kineahma, Government of Kostroma.—Chemicals. 200
 - 6 Rastergaëff, Gregory, St. Petersburg.—Chemicals. 200
 - 7 Matteissen, Nicolas, Moscow.—Potash. 200
 - 8 Shlippe, Moscow.—Chemicals. 200
 - 9 Bett, Theodore, Cronstadt.—Oil, refined lubricating. 201
 - 10 Calcined Bone Manufacturing Co., St. Petersburg.—Burnt bone, bone grease, ammoniac, etc. 201
 - 11 Calix, John, St. Petersburg.—Oil, lubricating. 201
 - 12 Hartman, W., Riga. 201
 - a Oils, refined and drying.
 - b Oil varnish.
 - 13 Yasakovitch, J. & M., Odessa.—Soap. 201
 - 14 Krestovnikoff Bros., Kazan.—Stearine candles and glycerine. 201
 - 15 Schmidt, C., Riga.—Oil, refined, linseed, oil cakes. 201
 - 16 Tahlheim, George, Riga.—Lubricating grease. 201
 - 18 Lankovski & Likop, Mitau.—Inks, writing, copying, and fluids. 202
 - 20 Poitelling, Peter, St. Petersburg.—Varnish and lacker. 202
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 - 36 Bonafede, Leopold, St. Petersburg. 208
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 - b Enameled ornamental vases and plates.
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 - 38 Krasnostchekoff, Paul, Moscow.—Painted faience ware. 210
 - 39 Cibulski, Cassimir Smeloff, Government of Rodom, District of Opatoff.—Stoneware. 210
 - 40 Ter-Davydoff, St. Petersburg.—Earthenware jugs. 210
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 - 43 Zaitzevski, St. Petersburg.—Ornamental pottery. 211
 - 45 Korniloff Bros., St. Petersburg.—China cups and plates. 213
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- 104 Kommichau, Germanius, Belostok, Government of Grodno.—Woolen goods and blankets. 237
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- 168 Miakotin, John, St. Petersburg.—Hats and caps. 251
- 170 Tchiatiakoff, Basil, Schawkin, St. Petersburg.—Hats and caps. 251

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- 176 Moltchanoff, Wladimir, Vologda.—Russian lace and embroidery. 252
- 177 Koroleff, Basil, Toryok, Government of Twer.—Embroidered articles. 252
- 178 Koroleff, L., Moscow.—Embroidered and inlaid leather cushions. 252
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- 180 Kamenatchikoff, Toryok, Government of Twer.—Embroidered cushions, sashes, etc. 252
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- 184 Sovetoff, Mary, St. Petersburg.—Embroidered shirt. 252
- 185 Society for the Encouragement of Women's Labor, Moscow.—Embroideries, towels, handkerchiefs. 252
- 186 Reichel, Julius, Warsaw.—Embroideries, handkerchiefs. 252
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- 284 Fedoroff, John, Moscow.**—Lime-tree bast hampers, samples of same material. 289
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- 286 Skorniakoff, E., Yaroslavl.**—Articles turned in wood. 289
- 287 Serebrenikoff, Sergius, Nijni-Novgorod.**—Painted wooden tureens and utensils for house. 289
- 288 Moltchanoff, Wladimir, Nijni-Novgorod, Vologda and Sergievski, Passad, near Moscow.**—Wooden tureens and household articles. 289
- 289 Beliaieff, George, Fastavo, near Moscow.**—Albums, papier-maché. 289
- 290 Safonoff, S. A., Sergievsky, Passad, Government of Moscow.**—Toys carved in wood. 289
- 292 Mikhaeloff, Mrs., St. Petersburg.**—Ornamental wooden tureens and spoons. 289
- 293 Mikhaeloff, Basil, Kretsky, Government of Novgorod.**—Painted wooden household utensils. 289

- 294 Lookootin, Alexander, & Son, Moscow.**—Lacquered and painted papier-maché articles. 289
- 295 Alexeieff, A., Oostug Veliki, Government of Vologda.**—Basket, secret locks. 289
- 296 Serebrenikoff, Sergius, Nijni-Novgorod.**—Chests. 289
- 297 Mneff, John, Moscow.**—Chests and caskets. 289
- 298 Solomonoff, P. Z., Moscow.**—Chests. 289

Carriages, Vehicles, and Accessories.

- 299 Schmidt, Edward, St. Petersburg.**—Patent carriage axles. 292
- 300 Chief Intendency of War, St. Petersburg.**—War train-wagons and vehicles. 294
- 301 Shiloff, Athanasius, Moscow.**—Harness, gilt fittings and trimmings. 296
- 302 St. Petersburg Arsenal.**—Artillery harness. 296
- 303 Mück, William, Warsaw.**—Hemp carriage trimming, bridles, girth for harness. 296
- 304 Lange & Co., Moscow.**—Reins and saddle girths. 296
- 305 Roosin, Theodore, Pestovo, Government of Moscow, District of Bogorodsk.**—Harness. 296
- 306 Sossoolnikoff, John, Nijni-Novgorod.**—Harness. 296
- 307 Hodjaeff, Karapet, St. Petersburg.**—Harness and saddlery. 296
- 308 Herczinski, W., Warsaw.**—Harness articles—reins, traces, saddles, etc. 296
- 309 Antonoff, Moscow.**—Harness-bow (dooga) painted and gilt. 296

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 27-45.

Established 1790.

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THE SUN NEWSPAPER

Is printed and published every day in the year, at 166, 168, and 170 Nassau Street, New York City. Its regular edition on secular days now (April, 1876) averages about 140,000; its weekly edition over 88,000; and its Sunday issue is nearly 100,000. It thus prints and sells more than a million copies a week, which are read all over the United States. This is a circulation unprecedented in American journalism, and it is constantly on the increase. In proof of this, let the following figures testify. They show the number of copies of THE SUN printed every week during the year ending March 11, 1876.

WEEK ENDING	COPIES PRINTED.	WEEK ENDING	COPIES PRINTED.
March 20.....	849,882	September 18.....	860,358
27.....	845,802	25.....	858,778
April 8.....	857,956	October 2.....	863,935
10.....	868,556	9.....	870,820
17.....	855,076	16.....	878,082
24.....	858,270	23.....	874,625
May 1.....	869,542	30.....	876,160
8.....	867,550	November 6.....	908,580
15.....	877,450	13.....	852,372
22.....	874,946	20.....	847,815
29.....	866,276	27.....	836,248
June 5.....	873,782	December 4.....	845,378
12.....	869,769	11.....	1,042,716
19.....	880,348	18.....	956,294
26.....	883,846	25.....	983,864
July 3.....	898,862	January 1.....	933,987
10.....	867,574	8.....	952,202
17.....	877,400	15.....	953,019
24.....	876,282	22.....	969,911
31.....	874,216	29.....	967,850
August 7.....	865,558	February 5.....	993,030
14.....	875,982	12.....	1,024,647
21.....	880,488	19.....	1,027,209
28.....	870,502	26.....	1,014,766
September 4.....	872,211	March 4.....	1,014,993
11.....	860,755	11.....	1,028,951
TOTAL.....		46,799,769	

In printing these papers, no less than three million four hundred and twenty-six thousand six hundred and ten (3,426,610) pounds of paper were consumed.

ADVERTISING RATES.

DAILY AND SUNDAY, 40 cents a line, ordinary advertising; large type, 80 cents; and preferred positions, 50 cents to \$2.50, according to classification.

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Garden Designing, Construction, and Management.

- | | |
|--|---|
| <p>34 Peck & Skilton, Westville, Ct.—
Rustic buildings. 733</p> <p>35 Lebanon Building & Paving Block
Company, Lebanon, Pa.—Building blocks
of annealed slag paving. 733</p> <p>36a Seibrecht, H. A., & Co., New York,
N. Y.—Rock-work. 733</p> <p>36b Elmore, Daniel, Trumansburg, N.
Y.—Summer-houses and pagodas. 733</p> | <p>36 Pacific Guano Co., Boston, Mass.
a Machines, materials, staple products of
the soil of the United States, specimen
plants fertilized with guano. 734
b Commercial fertilizers, phosphatic, calca-
reous, etc. 681</p> <p>37 Boileau, A., New York, N. Y.—
Trained fruit trees. 734</p> <p>38 Austin, R., Camden, N. J.—Cranberry
vines. 734</p> <p>39 Miller & Sievers, San Francisco,
Cal.—Collection of cones of the Pacific
coast, conifers. 603</p> |
|--|---|
- For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 19-24.

ARGENTINE REPUBLIC.

(Annex, Gallery No. 27.)

[Works of Art marked with an asterisk (*) are for sale. For information apply at the Office of the Argentine Republic, Main Building.]

OIL PAINTINGS.

NO.	ARTIST.	TITLE.
1	Petrazzini, Buenos Ayres,	*Fruit.
2	Gattinoni, Carlos, Buenos Ayres,	*Child's Head.
3	Gattinoni, Carlos, Buenos Ayres,	*Old Man's Head.
4	Marroig, G., Entre Rios,	*At the Fountain.
5	Diaz, Josefa, Santa Fé,	*Argentine Gaucho.
6	Castillo, B. del, Buenos Ayres,	*Peace.
7	Boneo, M. L., Buenos Ayres,	Native Scene.
8	Diaz, Josefa, Santa Fé,	*The Chaco Indian.
9	Charton, E., Buenos Ayres,	Valparaiso, Chili.
10	Gattinoni, Carlos, Buenos Ayres,	*Rustic Court.
11	Gattinoni, Carlos, Buenos Ayres,	*A Difficult Answer.
12	Charton, E., Buenos Ayres,	Chilian Farmer.
13	Diaz, Josefa, Santa Fé,	*Fruit.
14	Charton, E., Buenos Ayres,	View of Santiago, Chill.
15	Boneo, M. L., Buenos Ayres,	Native Scene.
16	Pasquinelli, A., Santa Fé,	*The Watering-Place.
17	Marroig, G., Entre Rios,	*The Beggar Monk.
18	Gattinoni, Carlos, Buenos Ayres,	*Giovanni Beccaccio visiting Beatrice Alighieri, daughter of Dante, in the Monastery of Ravenna.
19	Barros, Alvaro, Buenos Ayres,	The Murder of Dr. Varela.
20	Chiamas, Epaminonda, Buenos Ayres,	*At the Camp Store.
21	Charton, E., Buenos Ayres,	City and Harbor of Panama.
22	Charton, E., Buenos Ayres,	General View of Guayaquil.
23	Boneo, M. L., Buenos Ayres,	Native Scene.
24	Castillo, B. del, Buenos Ayres,	*Fruit and Flowers.
25	Gattinoni, Carlos, Buenos Ayres,	*Boy after a Bath.
26	Boneo, M. L., Buenos Ayres,	Native Scene.
27	Castillo, B. del, Buenos Ayres,	*Burning of the Steam-Packet America on her Voyage from Buenos Ayres to Montevideo.
28	Diaz, Josefa, Santa Fé,	*Black Servant.
29	Charton, E., Buenos Ayres,	Public Square in Córdoba.
30	Muratory, José, Buenos Ayres,	Naval Battle.
31	Muratory, José, Buenos Ayres,	Naval Battle.
32	Muratory, José, Buenos Ayres,	Naval Battle.
33	Muratory, José, Buenos Ayres,	Naval Battle.
34	Calzadilla, S., Santiago,	*The Washerwoman going to her Work.

MEXICO.

[Information concerning the sale of Works of Art may be obtained at the office of the Mexican Commission, Main Building.]

(Annex, Gallery No. 9.)

OIL PAINTINGS.

NO.	ARTIST.	TITLE.	OWNER.
1	Sagredo, Ramon,	The Castle of Emaus.	The National Academy.
2	Hernandez, Ignacio,	Portrait of Mina, one of the heroes of Mexican Independence.	The National Academy.
3	Ramirez, Joaquin,	Portrait of Hidalgo, father of Mexican Independence.	The National Academy.
4	Pina, Salomé,	Saint Charles.	The National Academy.
5	Ramirez, Joaquin,	Noah's Ark.	The National Academy.
6	Monroy, Felix,	The Death of Atala.	The National Academy.
7	Velasco, José Maria,	The Valley of Mexico.	Artist.
8	Figueroa, Gregorio,	The Death of Abel.	The National Academy.
9	Velasco, José Maria,	Wood of Chapultepec.	The National Academy.
10	Jimenez, José,	Interior of the Convent of Loreto, City of Mexico.	The National Academy.
11	Rebull, Santiago,	The Death of Marat.	Artist.
12	Flores, Rafael,	Dante.	The National Academy.
13	Dumaine, Gregorio,	The Road of Chapultepec.	The National Academy.
14	Gargollo, Julio,	The Morning Paper.	Artist.
15	Coto, Luis,	The Town of Guadalupe Hidalgo.	The National Academy.
16	Gonzalez, J.,	Evil Presentiments.	The National Academy.
17	Cordero, Juan,	Columbus before the Court of Ferdinand and Isabella.	The National Academy.
18	Ocaranza, Manuel,	The Withered Flower.	The National Academy.
19	Manchois, Juan,	Saint Peter Restoring a Child.	The National Academy.
20	Obregon, José,	Giotto and Cimabue.	The National Academy.
21	Clavé, Pelegrin,	Isabel of Portugal.	The National Academy.
22	Cordero, Juan,	The Family of the Artist Cordero.	Artist.
23	Gutierrez, Felipe,	Saint Sebastian.	The National Academy.
24	Parra, Felix,	Galileo.	The National Academy.
25	Vega, Federico de la,	The Fall of Satan.	The National Academy.
26	Gutierrez, Rodrigo,	The Fisher-Boy.	The National Academy.
27	Ferrando, Salvador,	Jacob Anointing a Rock.	The National Academy.
28	Montenegro, Guadalupe,	The Young Sketcher.	The National Academy.
30	Escudero y Espronceda, José,	Portrait of Benito Juarez, late President of Mexico.	Artist.
43	Enriquez, Nicolas,	Apparition of the Holy Virgin—seventeenth century.	The National Academy.
44	Villalando, Carlos de,	Interior of the Convent of Bethlehem—seventeenth century.	The National Academy.
45	Caballero, N.,	Holy Spring in Guadalupe—seventeenth century.	The National Academy.
46	Castro, José Antonio,	Spain (allegorical painting).	The National Academy.
47	Paez, José,	Saint Rosalia.	The National Academy.
48	Rodriguez, Antonio,	Saint Thomas of Villanueva.	The National Academy.
49	Correa, Nicolas,	Saint Catalina of Senna—seventeenth century.	The National Academy.
50	Lopez de Herrera,	The Crucifixion—seventeenth century.	The National Academy.

NO.	ARTIST.	TITLE.	OWNER.
51	Rodriguez, Juan, Juarez	San Juan de Dios — seventeenth century.	The National Academy.
52	Rodriguez, Nicolas,	Saint Gertrude — seventeenth century.	The National Academy
53	Vazquez,	Assumption of the Virgin Mary — sixteenth century.	The National Academy.
54	Ibarra, José,	Scenes in the Life of the Virgin Mary — seventeenth century.	The National Academy
55	Vazquez, Ignacio,	Death of Goliath.	The National Academy.
56	Vega, Joaquín de la,	Portrait — Professor Carcano — seventeenth century.	The National Academy.
57	Aleibar, José,	Portrait — Don Manuel Justo Bolea Sanchez	The National Academy

STATUARY.

NO.	ARTIST.	TITLE.	OWNER.
58	Dumaine,	The Orphans (plaster).	
59	Fernandez, J.,	A figure (plaster).	
60	Guerra, Gabriel,	A Fisherman (plaster).	
61	Sojo,	Mercury and Argos (plaster).	
62	Fernandez, J.,	A Calí (plaster).	

(Annex, Gallery No. 29.)

OIL PAINTINGS.

NO.	ARTIST.	TITLE.	OWNER.
28	Rebull, Santiago,	Abraham.	The National Academy
33	De Mayora, Mrs. Guadalupe O.,	The Prayer.	Artist
34	De Mayora, Mrs. Guadalupe O.,	Savoyard Beggar-Boy.	Artist.
35	De Mayora, Mrs. Guadalupe O.,	Fruit.	Artist.
36	De Mayora, Mrs. Guadalupe O.,	Fruit.	Artist.
37	De Mayora, Mrs. Guadalupe O.,	A Page.	Artist.
38	De Mayora, Mrs. Guadalupe O.,	The Madonna (after Murillo).	Artist.
39	De Mayora, Mrs. Guadalupe O.,	Portrait — Rembrandt.	Artist.
40	Merjete, Patricio Jose,	San Luis Gonzaga	The National Academy

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New Jersey	27	Wisconsin	98	Georgia	10
Pennsylvania	65	Tennessee	29	Alabama	32
Virginia	24	Kentucky	29	Louisiana	11
No. and So. Carolina	24	Minnesota	79	Mississippi	29
Ohio	122	Iowa	85	Other States	46
Indiana	81				

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- ging. Valves; Eddy's patent straight way double gated gates, hung on universal joint; perfectly adjustable duplex turbine so arranged as to develop full power from variable quantities of water; lampposts; turbines; heavy machinery. B 18, and *Pump annex.* 566
- 832** Roots, P. H. & F. M., Connersville, Ind.—Tuyere irons and fire bed, bye pass, gas valves. Patentees and manufacturers of hand blowers for blacksmithing of all kinds; also, portable forges adapted to every variety of work; also, improved Tuyere iron and fire bed combined. (*Pump annex.*) 566
- 833** Allison, W. C., & Sons, Philadelphia, Pa.—Boiler tubes, oil-well tubing, steam pipe, rivets, bolts, nuts, washers, carriage bolts, forgings. B 24. 566
- 834** Cooper, Jones, & Cadbury, Philadelphia, Pa.—Supplies for plumbers, steam fitters, and machinists, etc. B 19. 566
- 835** Merchant & Co., Philadelphia, Pa.—Seamless brass and copper tubes, sheet and planished copper, brass wire and tubing, tin plates. B 19. 566
- 836** Patent Water & Gas Pipe Co., Jersey City, N. J.—Wrought iron asphalt-cement water pipe. B 22. 566
- 837** Flagg, Stanley G., & Co., Philadelphia, Pa.—Fittings for gas, steam, and water pipes. A 41. 566
- 838** Ludlow Valve Manufacturing Co., Troy, N. Y.—Sliding stop valves for water, gas, and steam, fire hydrants, etc. B 26. 566
- 839** Lunkenheimer, Fred., Cincinnati, O.—Automatic cylinder lubricators and glass oil-cups for steam engines; steam valves, with regrinding device; untrimmed brass castings. B 21 and 22. 566
- 840** Stileman, R. T. H., Philadelphia, Pa.—Water gates, fire hydrants, and station valves. B 19 and 20. 566
- 842** Lewistown Brass & Engine Co., Lewistown, Pa.—Brass goods. C 74. 566
- 843** Walworth Manufacturing Co., Boston, Mass.—Steam heating apparatus; steam and gas fitters' tools, etc.; laundry apparatus, etc.; pipe and fittings for steam, gas, and water. A 76, E 73 and B 41. 566
- 844** Radde, William, 548 Pearl street, New York, N. Y.—Patent glass-lined iron pipe; keeps water, chemicals, and all liquids perfectly pure; prevents poisoning by metallic water pipes; is a safe pipe for aquaria; resists frost, and gives full satisfaction. Patent underground telegraph system; secures perfectly reliable telegraphic connections, under all circumstances, and, thereby, life and property; is composed entirely of inorganic substances. Naked copper wires are drawn through very small glass tubes (3 to 18 and upwards), which are held in the required position in an iron pipe by paraffine wax. Both articles are cheap; need no repairs. B 3-20. 566
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- 846** Jarecki Manufacturing Co., Erie, Pa.—Brass work for steam, gas, water, oil, and iron fittings, adjustable pipe tongs. B 20-21. 566
- 847** Starr, Jesse W., & Son, Camden, N. J.—Castings for gas and water, lamp posts, fire hydrants, stop valves, etc. (*Outside of building.*) 566
- 848** Colwell Lead Co., New York, N. Y.—Lead pipe, sheet lead, block tin pipe, tin-lined lead pipe. B 22-23. 566
- 849** Long Dennis & Co., Louisville, Ky.—Cast iron gas and water pipes. Have in operation three foundries, with melting and casting capacity of 200 tons daily; supply the gas and water mains for the principal cities and towns west, north, and south. B 20-21. 566
- 849a** Warren Foundry & Machine Co., Phillipsburg, N. J.—Cast iron water pipe. (*In building near Machinery Hall.*) 566
- 849b** Peck Bros., & Co., New Haven, Conn.—Brass-plated cocks, valves, and fittings for plumbers', gas and steam fitters' use. A 40. 566
- 850** Lariwig & Batten, New York, N. Y.—Champagne freezer. B 21. 566
- 851** O'Neill, Andrew, Ansonia, Conn.—Cast iron pipe; patent gas and water mains, jointing without hot lead, a saving of 50 per cent. over the old; O'Neill's patent-planished copper and brass, tinned or nicked; nicked sheet zinc and yellow metal couplings for soil or surface and telegraph pipes. B 3-22, and *outside.* 566
- 852** Mills, Thomas, & Bro., Philadelphia, Pa.—Vertical engine and ice cream freezer combined, ice cream freezers and freezing apparatus. E 65. 568
- 853** Knickerbocker Ice Co., Philadelphia, Pa.—Ice tools, elevators, wagons, and ice machinery. B 18. 568

Railway Plant, Rolling Stock, and Apparatus.

- 855** Burnham, Parry, Williams, & Co., Philadelphia, Pa.—Locomotives. E 41-43, and E 45. 570
- 855a** Rhode Island Locomotive Works, Providence, R. I.—Passenger locomotive engine; photographs of locomotives. E 46. 570
- 855b** Brooks' Locomotive Works, Dunkirk, N. Y.—Narrow-gauge locomotive. (*West End Passenger R. R.*) 570
- 856** Pease, James H., Reading, Pa.—Historical chart of inventions and improvements of the locomotive and railway system. E 71. 570
- 857** Rogers Locomotive & Machine Works, Paterson, N. J.—Locomotive engine, and tender. D 41, 42, 43. 570
- 858** Danforth Locomotive & Machine Co., Paterson, N. J.—Locomotives. D 28 and 41. 570
- 859** Howe, Henry, Council Bluffs, Iowa.—Apparatus for supplying locomotives with water. D 68. 570
- 859a** Dickson Manufacturing Co., Scranton, Pa.—Portion of the Stone-bridge Lion locomotive. C 27. 570

Locomotives, Railway Plant, Scales.

- 859b** Polytechnic College, Philadelphia, Pa.—Working model compressed locomotive with horizontal grip drivers for ascending planes. E 44. 570
- 859c** Robinetz, James F., Petersburg, Va.—Model locomotive. (*Empire Transportation Co.'s building.*) 570
- 860** Rowand, John R., Philadelphia, Pa.—Locomotive-power brake. For the safety of life, in collisions, through the crushing of coal, in the ends of the platforms of locomotives. E 48. 570
- 861** Porter, Bell, & Co., Pittsburg, Pa.—Narrow-gauge passenger locomotive and tender. Exclusive specialty light locomotives. Catalogues sent on application. E 44-46. 570
- 863** Philadelphia & Reading Railroad Co., Philadelphia, Pa.—Locomotive and tender. D 44-47. 570
- 864** Dickson Manufacturing Co., Scranton, Pa.—Locomotive and mining machinery. E 49-53. 570
- 865** Pennsylvania Railroad Co., Altoona, Pa.—Locomotive built in 1831, baggage and passenger car combined (old style). (*Outside of building.*) 570
- 866** Mason Machine Works, Taunton, Mass.—Narrow gauge locomotive. (*In use on West End Railroad.*) 571
- 866a** Johnson, Chas. E., & Co., Lansing, Iowa.—Self-coupling railway car. F 35. 571
- 866b** Lebanon Manufacturing Co., Lebanon, Pa.—Coal cars. (*Outdoors, west of Machinery Hall.*) 571
- 867** Riehle Bros., Philadelphia, Pa.—Scales, testing machines, beams, rope-twisters, sand-sifters. E 54. 571
- 868** Fairbanks & Ewing, 715 Chestnut street, Philadelphia, Pa. (Manufacturers, E. & T. Fairbanks & Co., St. Johnsbury, Vt.)—Railroad track, weigh lock, hay, coal, platform, and counter scales of all descriptions; fine gold and druggists' scales; also improved testing machines for ascertaining the strength of metals, etc. Principal warehouses, Boston, New York, Philadelphia, Baltimore, New Orleans, San Francisco, St. Louis, Chicago, Louisville, Cincinnati, Cleveland, Buffalo, Pittsburg, Albany, Montreal, and London, England. E 56-60. 571
- 869** Brandon Manufacturing Co., Brandon, Vt.—Railroad, merchandise, post-office, and other scales, beams and trucks. E 61-63, and D 8. 571
- 870** Dell, John C., Philadelphia, Pa.—Scales and weights. D 62. 571
- 871** Buffalo Scale Co., Buffalo, N. Y.—Platform, counter, and combination beam scales. D 54. 571
- 872** Crossman, M., Marshall, Ill.—Hand car. (*Outside of Machinery Hall.*) 571
- 873** Becker & Sons, 232 E. 128th street, New York, N. Y.—Becker's construction of improved balances and weights of precision for druggists, chemists, assayers, and for all purposes where accuracy is required. D 51. 571
- 874** Meyers, F., Newark, N. J.—Scales. D 53. 571
- 875** Hitchcock, S. S., Des Moines, Iowa.—Scales. D 47. 571
- 877** Gilly, John L., Columbus, O.—Freight cars; car wheels. (*West of Machinery Hall.*) 571
- 878** Ball, C. A., & Co., Midland Park, N. J.—Trucks. C 9-71. 571
- 879** Willoughby, James D., Philadelphia, Pa.—Notifying scales, frictionless scales. D 18 and 51. 571
- 880** Chatillon, John, & Sons, New York, N. Y.—Spring balances, self-adjusting scales, counter scales, scale beams. D 50. 571
- 881** Harrisburg Car Manufacturing Co., Harrisburg, Pa.—Eight-wheeled box freight cars. B 1-9, and A 5-9. 571
- 883** Price, Lipsett, & Co., Philadelphia, Pa.—Railroad track scale, platform scales. E 76. 571
- 885** Robidoux, Joseph, & Sons, New York, N. Y.—Scale beams, frames, hooks, etc. D 49. 571
- 886** Steinway & Sons, New York, N. Y.—Metal frames for pianofortes, pianoforte actions. D 49. 571
- 887** Automatic Scale Co., Boston, Mass.—Automatic scales. D 51. 571
- 888** Reinhardt, Chas., Brooklyn, N. Y.—Druggists', gold, and diamond scales. D 62. 571
- 889** Henderson Hydraulic Car Brake Co., Philadelphia, Pa.—Car brake, by steam or hydraulic pressure. D 64-66. 572
- 889a** Singer, Jacob, Harrisburg, Pa.—Automatic car coupler; brakeshoe. E 72. 572
- 889b** Welch, Robert R., Frankford, Pa.—Automatic car coupler. E 74. 572
- 890** Lahaye, J. J., Reading, Pa.—Model cars with automatic couplings. In successful operation on the Philadelphia & Reading Railroad, by which company it was adopted after more than a year's trial. D 64. 572
- 891** Barton, C. S., Philadelphia, Pa.—Railway station indicator, operated from engine by compressed air or by hand. D 64. 572
- 892** Haase, John A., Philadelphia, Pa.—Model of safety car-step. B 41. 572
- 892a** Eames Vacuum Brake Co., Watertown, N. Y.—Injector, valve, vacuum, brake, etc. D 69. 572
- 892b** Decrow, A. W., Bangor, Me.—Smoke conductor; railroad concussion brake. E 69. 572
- 894** Kline, Aaron K., Somerville, N. J.—Model of car coupling. D 69. 572
- 895** Nelson, Nels., Minneapolis, Minn.—Steam and air car brake, car coupler. D 65. 572
- 896** Bing, James, Philadelphia, Pa.—Brake shoe. E 76-77. 572
- 897** Westinghouse Air Brake Co., Pittsburg, Pa.—Automatic brakes, vacuum brakes, air compressors, speed indicators, engine governors, engine. D 67. 572
- 898** Cobb, Z., & Sons, Wilmington, Del.—Elliptic steel springs, for car seats and upholsterers, door springs. E 68. 573

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.

Railway Plant, Wheels, Springs, Trucks, etc.

- 899 Cayuta Wheel & Foundry Co.,** Waverly, N. Y.—Chilled wheels for cars and engines; specimens and tests. E 64. 573
- 900 Lobdell Car Wheel Co.,** Wilmington, Del.—New and old railroad car wheels, tires, castings, etc. E 65. 573
- 901 Ramapo Wheel & Foundry Co.,** Ramapo, N. Y.—Railroad car and engine wheels. E 71. 573
- 902 Culmer Spring Co.,** Pittsburg, Pa.—Springs for railway purposes. Spiral draft, bolster, journal, equalizing bar, tender, brake release, switch, and valve springs. Spiral springs of all descriptions, made to order. E 69. 573
- 903 Bryant, George B.,** Pottsville, Pa.—Self-oiling car wheels, loose pulleys, cups, car journals; vehicle and carriage wheel hubs; independent car axles. * E 66. 573
- 904 French, A., & Co.,** Pittsburg, Pa.—Elliptic springs for cars and locomotives. E 71. 573
- 905 Miltimore Car Axle Co.,** New York, N. Y.—Railroad car truck, with combined, stationary, and revolving axles, loose, independent wheels, and oscillating boxes. Six sets narrow gauge railroad car trucks, fitted with the Miltimore axles and wheels, are in use on the West End Passenger Railway. D 69-70. 573
- 906 Tryon, Geo. K., Son, & Co.,** Philadelphia, Pa.—Car and other bearings and articles of phosphor-bronze, composition, Babbitt, and type metal. E 71. 573
- 907 Davenport, Fairbairn, & Co.,** Erie, Pa.—Engine and car wheels. E 70. 573
- 908 Miles, W. A.,** Copake Iron Works, Copake, N. Y.—Car wheels. E 68. 573
- 909 Middleton, N. & A., & Co.,** Philadelphia, Pa.—Railroad car springs with section of trucks. E 66 and 70. 573
- 910 Barnum Richardson Co.,** Lime Rock, Conn.—Salisbury iron ore, charcoal pig iron, cast chilled car wheels. E 71. 573
- 910a Ewart Manufacturing Co.,** New York, N. Y.—Drive chains. E 62. 573
- 910b National Car Spring Co.,** New York, N. Y.—Elliptic, spiral, rubber, volute and rubber centre spiral car springs. E 68. 573
- 911 Standard Steel Works, Philadelphia, Pa.**—Crucible steel locomotive and car wheel tires, castings, and forgings. E 72. 573
- 912 Midvale Steel Works.—Works and Office,** Nicetown, Philadelphia, Pa. C 23.
 a Cast steel tires, all sizes and sections; record of trial in hydraulic press of Baldwin locomotive works, April, 1876. 573
 b Cast steel axles, guaranteed to stand five blows of seventeen hundred pounds' drop, falling twenty-five feet upon four-inch section, bearings three feet apart; axle reversed between blows. 573
 c Same, bent, cold. 573
 d Rails, twisted, cold. 574
 e Solid cast steel forging, diameter thirteen inches; length, twelve feet. Tensile strength per square inch, 83,824 pounds; elastic limit, per square inch, 50,000 pounds; elongation under strain, 16.5 per cent. 513
 f Solid steel castings; railroad crossing; planed anvil-face, weighing 3280 pounds. 513
 Miscellaneous ingots. 513
 g Ingots of open-hearth steel, broken, showing solidity and characteristics of same. Elastic limit per square inch, 65,018 pounds; tensile strength, per square inch, 123,220 pounds; elongation under strain, 16.5 per cent. 513
 i Tool, machinery, and spring steel, all shapes, with fractures and evidences of quality. 513
 j Forgings. 514
- 913 Lang, Wm., Bailey, & Co.,** New York, N. Y.—Cast steel locomotive tires. F 70. 573
- 914 Whitney, A., & Sons,** Philadelphia, Pa.—Car wheels and axles. E 72. 573
- 915 American Paper Car Wheel Manufacturing Co.,** Hudson, N. Y.—Coach, truck and car wheels, of paper, steel and iron combined. E 65. 573
- 916 Washburn Car Wheel Co.,** Hartford, Conn.—Steel-tired car wheels, cast iron centres. E 70. 573
- 916a White, Joseph J.,** Smithville, N. J.—Portable fare-box. D 64. 573
- 917 Sax & Kear,** Pittston, Pa.—Steel-tired truck and car wheels, with cast iron centres. E 73. 573
- 918 Harrison, Samuel L.,** San Francisco, Cal.—Railroad car axle, with independent wheels. E 72. 573
- 919 Schoem, Wm. H.,** Wilmington, Del.—Locomotive, car, and wagon springs. E 67. 573
- 920 Nichols, Pickering, & Co.,** Philadelphia, Pa.—D 67.
 a Railway elliptic, volute and spiral springs. 573
 b Cast steel nut-lock washers. 574
- 921 Fields, Wm.,** Wilmington, Del.—Cast steel rails, made direct from iron ore. E 64. 573
- 922 McKee, Fuller, & Co.,** Catasauqua, Pa.—Railroad car wheels. D 65. 573
- 922a Baltimore Car Wheel Co.,** Baltimore, Md.—Chilled cast iron engine and car wheels; samples of iron. E 66. 573
- 922b Atwood Railway Wheel Co.,** New York, N. Y.—Railway wheels. E 69. 573
- 922c Vose, Dinsmore, & Co.,** New York, N. Y.—Elliptic, spiral, rubber, volute and rubber centre spiral car springs. E 68. 573
- 922d Roberts, A. & P., & Co.,** Philadelphia, Pa.—Hammered and rolled car axles. E 72. 573
- 922e Hopkins, D. A.,** Jersey City, N. J.—Car journal boxes. E 69. 573
- 922f Woodbury, James A.,** Boston, Mass.—Elastic steel tire car wheels. E 70. 573
- 922g Taylor Iron Works, High Bridge,** N. J.—Passenger wheels on axle, narrow gauge wheels, sample wheels and sections; axles bent cold, etc. E 69. 573
- 923 Nashua Iron & Steel Co.,** Nashua, N. H.—Steel plates, tires, axles, shaftings, bars, and forgings; iron axles, bars, plates, car wheels, and forgings. E 66-67. 573

Railway Plant, Agricultural Machinery.

- 923a** Eccles, James, Philadelphia, Pa.—Frictionless journal box for railroad car axles. D 60. 573
- 923b** Columbia Car Spring Co., New York, N. Y.—Spiral and rubber car springs. E 69. 573
- 923c** Jeffries, James, & Sons, Philadelphia, Pa.—Locomotive, tender, and elliptic car springs. E 69. 573
- 924** Hamilton Steeled Wheel Co., Philadelphia, Pa.—Car wheels and specimens of metal, process of manufacture. D 68. 573
- 925** Jersey City Wheel Foundry & Machine Works, Jersey City, N. J.—Elastic steel tired car wheels, chilled car wheels. D 68. 573
- 925a** Potter & Hoffman, Philadelphia, Pa.—Railway construction tools. B 30. 573
- 925b** Union Car Spring Co., Bridgeport, Conn.—Car springs, and steel. E 71. 573
- 926** Raddin, John, Lynn, Mass.—Elastic car and carriage wheels, automatic brakes, compensating wheels, bunters, elastic chains, etc. E 70. 573
- 927** Fisher & Norris, Trenton, N. J.—"Fisher" patent rail joints for broad and narrow gauge roads. B 6-41, and Annex 1. 574
- 928** Wharton Railroad Switch Co., Philadelphia, Pa.—Railroad switch, steel rail frogs, steel rail crossing. D 71-73. 574
- 930** Jersey City Iron Works, Jersey City, N. J.—Detachable steel rail frogs and crossings, safety switch stands, car replacer. D 71. 574
- 931a** Cochrane, John, New York, N. Y.—Cleats to secure rails to the cross ties. E 48. 574
- 931b** Wood, Joseph, Red Bank, N. J.—Adjustable spring, and stationary frogs. E 69. 574
- 931c** Scheiner, J. H., Philadelphia, Pa.—Frogs for cars and signals. E 71. 574
- 931d** Stillman, Wait J., Troy, N. Y.—Track guard. (*Outside of building.*) 574
- 931e** Redding, W. E., New York, N. Y.—Railroad switches. (*Outside of building.*) 574
- 931f** Mansfield Elastic Frog Co., New Haven, Conn.—Railroad frog. E 71. 574
- 931g** Kasson, C. Vallette, Buffalo, N. Y.—Continuous rail, railway frog, and crossing. E 78. 574
- 931h** Seely & Stevens, New York, N. Y.—Pellucidite,—architectural wood finish. (*Used on all wood work in Machinery Hall.*)
- 932** Pennsylvania Steel Co., Harrisburg, Pa.—Bessemer steel ingots, blooms, forgings, and rails, open hearth steel ingots and blooms, safety switch, steel rail crossing and frogs, car replacer. D 29, and E 62. 574
- 933** Diamond State Iron Co., Wilmington, Del.—Railway track fastenings and merchant bar iron. Manufacturers of railroad splice bars, all sizes; noted for fit, quality, and finish. Track bolts and spikes of superior iron; extra quality bar and horseshoe iron. E 62. 574
- 933a** Lukens, J. H., Burlington, N. J.—Railway switch stand. D 71. 574
- 933b** Barker, E. W., Portland, Me.—Car coupler. D 70. 574
- 933c** Wood, Joseph, Red Bank, N. J.—Railroad frogs; switch stand. E 69. 574
- 933d** Tuthill, Daniel S., Newburg, N. Y.—Railway tracks—to overcome contraction and expansion. E 72. 574
- 934** Pratt Manufacturing Co., New York, N. Y.—Elastic fish joints. E 62. 574
- 935** Bean, H. & B. F., Pawling, Pa.—Mail pouch holder and catcher for railroad cars while in motion, draw heads for cars. D 66. 575
- 936** Rousseau's Railway Signal Co., New York, N. Y.—Electric railway signals, office indicators, switch locks, circuit closer, etc. D 67. 575
- 937** Wharton, Wm., jr., Philadelphia, Pa.—D 72.
- a** Patent Bessemer steel street railway curves; cast iron street railway curves; cast iron street railway switches; cast iron street railway frogs; cast iron street railway crossing. 574
- b** Patent cast-iron street railway turntable. 575
- 938** Spahn, Emil P., Newark, N. J.—Models for automatic railroad crossings, gates, and signals. E 57. 575
- 939** Ridge, Elmer, Philadelphia, Pa.—Balance folding gates for railway crossings. D 65. 575
- 939a** Lansing, H. S., Philadelphia, Pa.—Railroad crossing safety gate. (*North-east of Machinery Hall.*) 575
- 939b** Williams, Joseph S., Philadelphia, Pa.—Anti-frog tracks, rail switches, and crossings, rail supports, and car ventilator. P 72. 575
- 939c** Heywood, C. L., & Co., Boston, Mass.—Railroad bridge guard, for the protection of train men, at bridges over railroads. E 41. 575
- 939d** Hitchcock Lamp Co., Watertown, N. Y.—Lamps for fat oils and kerosene. D 40. 575
- 939e** Post & Co., Cincinnati, O.—Railway passenger-car trimmings, locomotive head lights. D 71. 576
- Machines used in preparing Agricultural Products.**
- 940** Deal, M., & Co., Bucyrus, O.—Separator and smutter, brush smutter, warehouse separator, and mill machinery trucks, etc. E 57. 580
- 941** Bullock, C. K., Philadelphia, Pa.—Flour mill machinery. E 52. 580
- 942** Huntley, Halcomb, & Hine, Silver Creek, N. Y.—Purifier, bran dusters, bolting cloth. E 47. 580
- 944** Howes, Babcock, & Co., Silver Creek, N. Y.—Eureka smut and separating machine. Eureka brush polishing machine. The worst samples of smutty and foul wheat can be perfectly cleaned with these two machines. Grain separator, with patent zigzag arrangement for separating oats and all other seeds from wheat. Bolting cloth, elevator buckets, mill stone brush, pick handles. E 49. 580
- 944a** Mungon Bros., Utica, N. Y.—Corn grinding mill, eye spindles, levers, etc. E 61-62. 580

Agricultural Machinery.

- 944^a** Cumbie & Donald, New York, N. Y.—Mechanical oven model. E 66, 67. 580
- 944^c** Stangeland, Elias, Rockdale, Minn.—Grain steaming machine. E 60. 580
- 944^d** Teter, W. L., Bristol, Tenn.—Self-regulating silent mill feed. E 63. 580
- 945** Noye, John T., & Son, Buffalo, N. Y.—Flour mill models, portable mills, millers' tools, middlings purifier, bran duster. E 47. 580
- 945^a** Gilbert, Calvin, Chambersburg, Pa.—Combined separating and scouring smut machine. E 57. 580
- 946** Ingraham & Beard, Chicago, Ill.—Grain scourer, smutter separator, grader, dustless malt and warehouse separator and grader. E 54. 580
- 947** Young, J., & S. Bernheisel, Green Park, Pa.—Flour bolt and middlings purifier combined, with bran separator and duster attached. E 57. 580
- 948** Hartis, Clinton S., Elizabeth, N. J.—Smut and scouring machine, and suction fan for cleaning grain. E 58. 580
- 949** Richardson, D. M., Detroit, Mich.—Improved patent wheat scourer, polisher, and separator. The principles covered in this machine may be briefly stated as follows, viz.: It scours and polishes the wheat thoroughly, without breaking, cutting, scratching, wearing away, or impairing the bran fibre, thereby leaving the bran full strength. When the wheat goes upon the burrs, the bran comes off in large flakes or patches, and passes through without pulverizing and mixing with the flour; the blast can be adjusted to secure any desired separation. F 60. 580
- 950** Turner, Parks, & Co., Cuyahoga Falls, O.—Rolling screen separator, middlings purifier, malt scourer, garlic, rabbit, and straw extractor. E 58. 580
- 952** Bernard & Leas Manufacturing Co., Moline, Ill.—Smutter, scourers, separator, flour packer, corn sheller, corn cleaner. E 48. 580
- 952^a** Conklin, N. A., Brooklyn, N. Y.—Corn chitting and hominy mill. F 48. 580
- 952^b** Roland, Francis, & Co., Reading, Pa.—Grain decorticator and separator; model of water wheel. E 61. 580
- 954** Woodward, Thos. B., Philadelphia, Pa.—Mill stones, mills, flour mill machinery. E 46. 580
- 955** Baltimore Pearl Hominy Co., Baltimore, Md.—Hominy mill or corn granulator. Manufacturers of breakfast hominy, samp, corn flour, pearl meal, etc. Sole owners and manufacturers Patent Buckeye Hominy Mill. F 59. 580
- 957** Griscom & Co., Pottsville, Pa.—Diamond mill stone dressing machines. (Will do as much work in one hour as can be done in a day with the pick.) Used by best mills. Thirty days' trial allowed. E 53. 580
- 958** Harrison, Edward, New Haven, Conn.—Vertical burr stone mills for grain, minerals, etc., and combined flouring mill and bolter. E 59. 580
- 959** Leonard & Silliman, Bridgeport, Conn.—Burr stone flour and grist mills. E 56. 580
- 959^a** United States Attrition Co., New York, N. Y.—Attrition mill for pulverizing ores, cereals, etc. F 49. 580
- 959^b** Allis, Edward P., & Co., Milwaukee, Wis.—Middlings purifier and duster, mill stones, cockle separator, and crushing rolls. E 56. 580
- 959^c** Hanna, C. T., Keokuk, Iowa.—Wheat steamer and dryer. E 57-58. 580
- 959^d** Macarthy, John, New York, N. Y.—Bran picker and duster. E 60. 580
- 959^e** Mecutchen, Jesse G., Philadelphia, Pa.—Smut machine, and mill stones. E 58-59. 580
- 959^f** Throops Grain Cleaner Co., Auburn, N. Y.—Grain scourer and separator; wheat brushing machine. E 68. 580
- 959^g** Kreider, Campbell, & Co., Philadelphia, Pa.—E 50.
 a Grain mill. 580
 b Spice mill. 585
- 960** Lafferty, H. W. & R., Gloucester, N. J.—Centrifugal sugar-draining machines, with mixer and elevator. E 46. 581
- 960^a** Schemesde, J. W. R., New York, N. Y.—Evaporator. E 57. 581
- 960^b** Colwell & Bro., New York, N. Y.—Vacuum pan and sugar refining apparatus. E 79. 581
- 960^c** Hepworth, S. S., New York, N. Y.—Centrifugal extractor. E 79-80. 581
- 961** Mills, Thomas, & Bro., 1301 and 1303 North Eighth street, Philadelphia, Pa.—Confectioners' tools, fruit-drop machine and rollers; flat stick, sour drop, and paper fringing machines. Patent candy slicer, cocoanut grater, cutters, egg beater, and toy machine. E 65. 582
- 962** Gardner, Mrs. John, Philadelphia, Pa.—Confectionery tools, candy machinery. F 48. 582
- 963** Croft, Wilbur, & Co., Philadelphia, Pa.—Revolving pans for making confections. E 64. 582
- 964** Mitchell, J. H., Philadelphia, Pa.—Cocoanut grater, candy slicer. B 80. 582
- 965** Anderson, J. P., Philadelphia, Pa.—Cocoanut graters, candy slicers. F 45. 582
- 966** Colburn, Levi J., Chicago, Ill.—Confectionery; process of manufacture. F 46. 582
- 967** Archer & Brownell, Richmond, Va.—Process of manufacturing plug and twist chewing and smoking tobacco, cigarettes. F 57. 584
- 967^b** Wulstein, Henry, New York, N. Y.—Tobacco granulator. F 55. 584
- 967^c** Tygh, James F., Philadelphia, Pa.—Tobacco stripping and booking machine; cigar moulds. F 63. 584
- 968** Cain, P. O., & Co., Philadelphia, Pa.—Cigar moulds. F 55. 584
- 969** Enterprise Manufacturing Co., Patented Hardware Manufacturers and Iron Founders, American and Dauphin streets, Philadelphia, Pa.—Coffee, drug, and spice mills, twenty sizes; measuring faucets, tobacco cutters, cheese knives, sad irons, bung-hole borers, sausage stuffers, fruit and jelly pressers. F 56. 585
- 970** Dell, John C., Philadelphia, Pa.—Coffee mills, scales. D 62. 585

Agricultural Machinery, Boats, Vessels, and Appliances.

- 971 Boyd, G., Philadelphia, Pa.**—Coffee roaster, coffee cooler. (*Annex 1.*) 585
- 973 Weikel & Smith Spice Co., Philadelphia, Pa.**—Coffee roasting and spice mill machinery. (*Annex 1.*) 585
- 374 Troemer, Henry, 710 Market street, Philadelphia, Pa.**—Coffee mills; manufacturers of scales and balances in use at the U. S. Treasury, and all the U. S. Mints and Assay Offices. F 55. 585
- 975 McCollum, L. A., New York, N. Y.**—Cracker machine, dough mixer, reversible dough brake, mechanical oven. E 66. 585
- 976 Silver & Deming Manufacturing Co., Salem, Ohio.**—Meat choppers and meat stuffers. F 54. 586
- 976a Speihlman, Geo., Strasburg, Pa.**—Meat chopper. F 55. 586
- 977 Ruger, J. W., & Co., Buffalo, N. Y.**—Cracker, bread, and cake machinery and bakers' tools. F 62. 586
- 978 Murray Iron Works Co., Burlington, Iowa.**—Meat choppers, lard presses, sausage stuffers, etc. This exhibit attracts special attention of butchers and sausage makers. The draw-cut movement of the knives (which is that of a knife used by hand), is the peculiar feature which is claimed, distinguishes these machines from all others, and secures to them a clean cut, without noise or pounding and with very little wear of the parts. Some of them have been in constant use for over four years, without repairs of any kind. Their beauty, and the smoothness and precision of their work, attracts very general attention from the many who are interested in this kind of machinery, they being the only "draw-cut" machines made. F 60. 586
- 979 Huber & McCarter, Lancaster, Pa.**—Steam meat chopper. E 60. 586
- 979a Roberts, Carle, & Co., New York, N. Y.**—Hand cutter. E 57. 586
- 979b Kenyon, J. H., Plainfield, N. J.**—Hand and power meat choppers. F 61. 586
- 979c Nittinger, August, jr., Philadelphia, Pa.**—Butchers' and packers' machinery. F 54. 586
- 980 Sauter, Charles, Reading, Pa.**—Malt cleaning machine, cylinder-wheel malt chopper. E 69. 587
- 981 Reford, J. W., Philadelphia, Pa.**—Grain-distilling and vapor-rectifying apparatus. E 69. 587
- 982 Boese, C., & Co., New York, N. Y.**—Capping machines, for adjusting metallic capsules on bottles, jars, etc. E 68. 587
- Aerial, Pneumatic, and Water Transportation.**
- 982a Sewall, Day, & Co., Boston, Mass.**—Shrouding, rope, etc. E 39. 590
- 983 Hartness, James, Detroit, Mich.**—Section balloon, with life-boat attached. D 32. 592
- 984 Swarsmayer, John, Philadelphia, Pa.**—Flying machine model. D 33. 592
- 985 Page, E. W., New York, N. Y.**—Boat oars. D 32. 594
- 986 Bolles, J. N., Baltimore, Md.**—Models for submarine work. A 56, and outside. 594
- 987 Fields, William, Wilmington, Del.**—Models of armor-ship, and field-battery gun. E 64. 594
- 988 Chomel, I. A., Brooklyn, N. Y.**—Swinging berths and platforms for prevention of sea-sickness. D 31. 594
- 989 Grinnell, Irving, New Hamburg, N. Y.**—Ice yacht. D 28-31. 594
- 989a Lyman, William, Middlefield, Conn.**—Bow-facing rowing gear. D 31, and on lake. 594
- 990 Wilen, George C., Philadelphia, Pa.**—Small boat. D 32. 594
- 991 Richards, H. J., West Troy, N. Y.**—Ice yacht. D 34. 594
- 992 Walton, Lewis W., New York, N. Y.**—Row-lock for boats. D 35. 594
- 993 Burr & Co., New York, N. Y.**—Tackle blocks, etc. D 34. 594
- 993a Perry, E. L., New York, N. Y.**—Life raft. D 37. 594
- 993b Whistler, Thos., Baltimore, Md.**—Non-capsizable life boat. D 31. 594
- 993c Stoner, John B., New York, N. Y.**—Floating lighthouse. D 35-36. 594
- 994 Desmond, Timothy, New York, N. Y.**—Pair-oared gig. D 36. 594
- 994a Bird, John, Philadelphia, Pa.**—Glass moulding press. (*Annex 3.*) 594
- 995 Adams, John & Co., Gloucester, N. J.**—Life preserving mattress, self-righting life boat. D 33. 594
- 995a Lyman, W., Middlefield, Conn.**—Rowing gear. D 31, and on lake. 594
- 995b Jackson, James L., New York, N. Y.**—Steering apparatus; process and apparatus for making patterns. C 35-36. 594
- 996 Waters, E., & Sons, Troy, N. Y.**—Paper boats, barrels, packages, cylinders, etc. D 35-36. 594
- 997 Bryant, John L., & Co., Philadelphia, Pa.**—Double life boat. D 33. 594
- 998 Von Behren & Shaffer, Stryker, O.**—Boat oar, handspike. D 38. 594
- 999 Smith, D. S., Philadelphia, Pa.**—Canoe, "Dolphin," of Queenstown, Md. D 38. 594
- 1000 Jones, John McA., Philadelphia, Pa.**—Boat-detaching apparatus. D 32. 594
- 1001 Begin, Peter N., Detroit, Mich.**—Revolving head light for vessels. D 39. 594
- 1002 Hook, Gilman, West Harwich, Mass.**—Toy yacht. D 32. 594
- 1003 Rider Life Raft Co., New York, N. Y.**—Life rafts. D 40. 594
- 1004 Miles, Geo. W., Philadelphia, Pa.**—Single scull shell. D 40. 594
- 1005 McGilvery, S. W., Belfast, Me.**—Model for clipper ship. D 40. 594
- 1006 Powell, Richard, Washington, D. C.**—Improvement in building iron vessels. D 39. 594
- 1006a Bradlee & Co., Philadelphia, Pa.**—Cable and rigging chains. D 38. 594
- 1006b Fearon, Thomas, Yonkers, N. Y.**—Shell boats, composite planking. E 40. 594

For location of objects, indicated by letter and figure, see Key to Notation, p. 10; ground plan, p. 11.

Boats, Vessels, and Appliances.

- 1006^c Roach, John B., Chester, Pa.—Models of vessels, shaft and froggings. E 40. 594
- 1006^d Glass, Wm., Philadelphia, Pa.—Race boat. D 36-37. 594
- 1006^e Englis, John, & Son, Greenpoint, N. Y.—Steamship models. D 34. 594
- 1006^f Flower, Wm., Bangor, Me.—Life saving apparatus, boat lowering, and detaching apparatus, etc. E 35. 564
- 1006^g Goldie, George, Princeton, N. J.—Rowing machine. D 40. 594
- 1006^h Pusey, Jones, & Co., Wilmington, Del.—Photographs and models of steamboats and steamships. C 74. 594
- 1006ⁱ Harrington, Charles B., Bath, Me.—Schooner yacht. D 32. 594
- 1006^j Parcels, Thomas, Philadelphia, Pa.—Full-rigged schooner sailing yacht. D 49. 594
- 1006^k Mallory, W. H., Bridgeport, Conn.—Steam yacht. *On Schuykill river.* 594
- 1006^l Cort, Mrs. C. A. van, New York, N. Y.—Torpedo boat. D 31. 594
- 1006^m Francis, Frank, Philadelphia, Pa.—Model of bark. D 36. 594
- 1006ⁿ Johnson, Hilary C., Philadelphia, Pa.—Miniature model of a full rigged ship. D 40. 594
- 1006^o Kahnweiler, David, New York, N. Y.—Cork jacket. D 40. 594
- 1006^p Ormsbee, M., Brooklyn, New York.—Sleeve life preservers and collar rescuer. "The Sleeve Life Preservers" are used to great advantage in pleasure-swimming, and, as a teacher of the novice, learning the art. To skaters they afford comfort, keeping the arms warm and the body harmless from falling, besides saving life should the ice break, preventing cramp in the arms, however cold the weather. Cricketers also wear them. They make two excellent pillows for traveling on the cars, boats, etc. They can be placed side by side for a cushion, and are easily carried in the pocket, and can be put on very quickly. "The Collar Life Preserver" rescues persons from drowning; is used also as a cushion for the house, counting-room, or traveling in the cars or boats, and as a cabinet invalid chair cushion. It can be put on instantly for life saving, even by a child two years of age; is used as a seat in the parks to prevent colds and sickness from sitting upon the damp ground. Bathing-house proprietors can be furnished with life preservers at prices that must assure them a handsome income from their sale or rental, with bathing-dresses, and by keeping the Collar Life Preservers always ready, none of their patrons can possibly be drowned, as they can be rescued in less than a minute by any of the assistants. Either of the preservers costs \$5; or \$1, to hire for a trip to Europe, or elsewhere. For particulars, address Capt. M. Ormsbee, patentee and manufacturer, 52 Willow street, Brooklyn, New York. D 40. 594
- 1006^q Tipton, John, Philadelphia, Pa.—Model of boat. D 36. 594
- 1006^r Rowland, T. F., Greenpoint, N. Y.—Steam launch, metallic life boat. A 69 and D 31. 594
- 1006^s Roach, John, & Son, New York.—Models, armor plate, and marine engine work. E 40. 594
- 1007 United States Bunting Co., Lowell, Mass.—Bunting and flags. F 40. 594
- 1008 Massachusetts State Commission, Leverett Saltonstall, Commissioner, N. E. Tower Main Building, Philadelphia, 18 Pemberton Square, Boston, Mass.—Water craft, old and new, and articles which take part in their construction and use,—being an historical exhibit of the growth of the marine interests of Massachusetts, from the earliest periods to the present time. F 38-40. 594
- 1009 American Life-Saving Suit Co., New York, N. Y.—Life-saving suit for ocean travel, surf belt for river travel. D 33. 594
- 1010 Wyatt, John L., Yonkers, N. Y.—Full-rigged clipper South Sea whale ship. E 38. 594
- 1011 Gildersleeve, S., & Sons, Gildersleeve's Landing, Conn.—Working models of wooden, steam, and sail vessels, for profitable freighting business. Largest carrying capacity on light draft with good sailing qualities. D 40. 594
- 1012 Poillon, C., & R., New York, N. Y.—Model of schooner yacht "Sappho" and pilot boats "Thomas S. Negus," of N. Y., and "E. C. Knight," of Philadelphia. E 39. 594
- 1013 Webb, Wm. W., New York, N. Y.—Models and plans of celebrated naval and other vessels. D 31. 594
- 1014 Cannon, John D., New Castle, Del.—Hooped skiff boat, without timbers or knees. D 31-32. 594
- 1015 Baird & Huston, Philadelphia, Pa.—Steam yacht. D 38-40. 595
- 1016 Harlan & Hollingsworth Co., Wilmington, Del.—Ships, models, drawings, and plans of vessels and machinery, paintings of ships and steamboats. D 29. 595
- 1017 Griffiths, John W., New York, N. Y.—Model of ocean steamship: "The Progressive Ship Builder." D 40. 595
- 1018 Zantinger, Dan'l W., Washington, D. C.—Model and section of steamship, improvement in construction of iron vessels. The above improvement consists in providing small watertight compartments entirely surrounding the hull of the vessel. D 40. 595
- 1019 Grant, D. Conrad, Houghton, Mich.—Adjustable ice plow and naval ram, or submarine mortar, attached to miniature boat. D 40. 594
- 1020 New York Safety Steam Power Co., New York, N. Y.—Steam launch. E 38-40. 595
- 1021 Crowell, J. W., & Co., Cambridge, Md.—Models for steam and sail vessels. Builders of all classes of wooden vessels. Frames furnished of best quality of Chesapeake white oak. We invite inquiry as to our facilities. D 40. 595
- 1022 Thwait, Charles, Astoria, N. Y.—Model of steamship, with working machinery. D 35. 595
- 1023 Sulter, Frederick, Philadelphia, Pa.—Propeller screws, models and drawings of boiler, etc. D 78. 595

Vessels and Appliances, Machinery in Use.

- 1022^b** American Steamship Co., Philadelphia, Pa.—Models and paintings of the steamers of the company. C 41. 595
- 1023** Pennsylvania Combined Iron & Steel Association, Philadelphia, Pa.—Combined iron and steel armor plate, steel bore wrought iron guns. D 28-30. 594
- 1024** American Dredging Co., 10 South Delaware avenue, Philadelphia, Pa.—Improved grapple and dipper dredges, and machinery for river and harbor improvements. E 40. 596
- 1024^a** Hawley, Abel, Washington, D. C.—Rotary dredge. E 40. 596
- 1024^b** Eau Claire Lumber Co., Eau Claire, Wis.—Sheer rudder loom and pontoon bridge. (*Saw mill.*) 596
- 1025** Cox, Frank, Philadelphia, Pa.—Model for coffer dam for removing propellers from ships. F 39-40. 596
- 1026** Coffin & Woodward, Boston, Mass.—Capstans, chain-stopper, screw-steerer, and rudder-supporter, elastic-traveler, portable winch, windlasses, pumps, etc. Best modern improved articles. D 39. 597
- 1026^a** Robinson, R. M., Philadelphia, Pa.—Simple and compound anchor, with apparatus. D 5. 597
- 1027** Sickles, F. E., Providence Steam Engine Co., Providence, R. I.—Original models of some of exhibitor's early inventions, now in use in this country and abroad, viz.: Trip cut-off, patented 1842, and improvements thereon patented 1845; casting steam chest on cylinder, patented 1845; improvement on working exhaust valves, patented 1844; first machine made or used to apply power to the rudder of vessels (in operation), application filed 1849, patented in 1860, etc.; improved compound engine, patented 1875; also original models of improvement in sinking pneumatic piles; also other original models. D 38. 597
- 1028** Getchett, John S., Washington, Me.—Capstan. D 40. 597
- 1029** American Ship Windlass Co., Providence, R. I.—Capstans, windlass models. D 40. 597
- 1030** Hutchinson, T. C., Philadelphia, Pa.—Anchor. D 40. 597
- 1030^a** Hamilton, S. M., Baltimore, Md.—Hydraulic cement. (*Annex 3.*) 103
- 1031** Hampton Emery Co., Chester, Mass.—Emery in grains. B 37. 106
- 1032** Potts Bros., Pottstown, Pa.—Flanged boiler iron and boiler flue iron. B 24. 111
- 1032^a** Potter & Hoffman, Philadelphia, Pa.—Iron and steel; boiler plate; pig and bar iron. B 30. 111
- 1033** Rittenhouse, E. W., & Bro., Baltimore, Md.—Terra-cotta pipe. (*Outside of building.*) 206
- 1035** Sellers, Wm., & Co., Philadelphia, Pa.—Electric registers, showing number of admissions at gates throughout the day. 321
- 1036** Ledgerwood Manufacturing Co., New York, N. Y.—Ash-hoister. 503
- 1037** American Twist Drill Co., Woonsocket, R. I.—Emery grinding machine, used in the Centennial machine shop. 505
- 1038** Stillwell & Bierce, Dayton, O.—Heater used in boiler house No. 4. 506
- 1039** McNeil, George, Philadelphia, Pa.—Heater used in boiler house No. 4. 506
- 1040** Sellers, Wm., & Co., Philadelphia, Pa.—Lathes, used in the Centennial machine shop. 520
- 1041** Prentice, A. F., & Co., Worcester, Mass.—Lathe and drill, used in the Centennial machine shop. 520
- 1042** Fitchburg Machine Co., Fitchburg, Mass.—Lathe and drill for use in the Centennial machine shop. 520
- 1043** Smith, H. B., Smithville, N. J.—Full set of wood-working tools for Centennial carpenter shop. 520
- 1044** Keystone Portable Forge Co., Philadelphia, Pa.—Three 6 power forges 54 inches in diameter, for the Centennial machine shop. 514
- 1045** Stephens Patent Vise Co., New York, N. Y.—Vises, used in the Centennial machine shop. 514
- 1046** Fisher & Norris, Trenton, N. J.—Vises and anvils, used in the Centennial machine shop. 514
- 1047** Mitchell, J. E., Philadelphia, Pa.—Grindstones, used in the Centennial machine shop. 515
- 1048** Andrews, W. D., New York, N. Y.—50 horse power boiler and pumps; boiler for use, and pumps for supplying cataract. 550
- 1049** Abendroth & Root, New York, N. Y.—100 horse power boiler, supplying steam to steam pumps, etc. 550
- 1050** Steam Generator Manufacturing Co., Philadelphia, Pa.—100 horse power boiler, supplying steam to steam engines. 550
- 1051** Babcock & Wilcox, New York, N. Y.—150 horse power boiler, supplying steam to steam pumps, etc. 550
- 1052** Harrison Boiler Works, Philadelphia, Pa.—200 horse power boiler, supplying steam to steam engine. 550
- 1053** Exeter Machine Works, Boston, Mass.—7 horse power boiler, supplying steam to steam pumps, etc. 550
- 1054** Kelly, W. E., New Brunswick, N. J.—50 horse power boiler, supplying steam to steam pumps, etc. 550
- 1055** Lynde, J. D., Philadelphia, Pa.—50 horse power boiler, supplying steam to steam engines. 550
- 1056** Miller, Charles B., Philadelphia, Pa.—Boiler, used in boiler house No. 4. 550
- 1057** Smith, C. D., Boston, Mass.—Boiler, used in boiler house No. 3. 550
- 1058** Lowe & Watson, Bridgeport, Conn.—Boiler, used in boiler house No. 3. 550

Machinery and Apparatus Especially Adapted to the Requirements of the Exhibition.

- 1034** Pease, F. S., Pease, Buffalo, N. Y.—Furnishes all the oil used for the shafting in Machinery Hall. 201

Machinery in Use.

- 1059 Mast, P. P., & Co., Springfield, O.—Boiler, used in saw mill boiler house. 550
- 1060 Baxter Steam Engine Co., New York, N. Y.—Engine and boiler, used in Nevada quartz mill. 550
- 1061 Bowser, J. C., & Co., Fort Wayne, Ind.—Engine and boiler for use in shoe and leather building. 550
- 1062 Peirce Rotary Tubular Boiler Co., New York, N. Y.—Rotary boiler, for use in saw mill boiler house. 550
- 1063 Baxter Steam Engine Co., New York, N. Y.—Engine, used in the Women's Pavilion. 550
- 1064 Hoadley, J. C., Co., Lawrence, Mass.—80 horse power engine and boiler, for use in Machinery Hall. 550
- 1065 Williamson Bros., Philadelphia, Pa.—Portable hoisting engine, used while installing machinery. 552
- 1066 Gates, Josiah, Lowell, Mass.—One 30 inch double leather driving belt. 553
- 1067 Hoyt, J. B., New York, N. Y.—One 15 inch and one 20 inch belt, for driving shafts in Annex 1 and 2. 553
- 1068 Yale Lock Co., Stamford, Conn.—Three pulley blocks, for use in Machinery Hall. 553
- 1069 Fales, George S., Pawtucket, R. I.—One 30 inch double driving belt. 553
- 1070 Burgess & Son, Pawtucket, R. I.—One 30 inch double driving belt. 553
- 1071 Alexander Bros., Philadelphia, Pa.—One 30 inch double driving belt. 553
- 1072 Heims, Anton, New York, N. Y.—One 30 inch double driving belt. 553
- 1073 Schieren, C. A., New York, N. Y.—Belt for use in No. 4 shaft. 553
- 1074 Page, B. & P. Co., Concord, N. H.—One 30 inch double driving belt, in No. 2 shaft. 553
- 1075 Rorer, Thos. J., Philadelphia, Pa.—Belt for driving shaft in Annex 3. 553
- 1076 Goodyear Rubber Co., Philadelphia, Pa.—Belt for driving shaft in Pump annex. 553
- 1077 Jones & Laughlin, Pittsburg, Pa.—Shafting, pulleys and hangers, for driving Centennial machine shop tools. 553
- 1078 Fitts, B., Worcester, Mass.—Steam whistle, for use during exhibition. and 4. 555
- 1079 Woodruff, James, Rahway, N. J.—Dampers, used in boiler houses Nos. 3 and 4. 555
- 1080 Edison, M. B., New York, N. Y.—Steam gauges, for use in boiler houses Nos. 3 and 4. 555
- 1081 Nathan & Dreyfus, New York, N. Y.—Patent oil cups, for one line of shafting. 555
- 1082 Lawrence, W. H., Brooklyn, N. Y.—Safety oil cans, used in Machinery Hall. 555
- 1083 Barr, Robert J., Philadelphia, Pa.—Elliptic steam trap. 555
- 1084 Sluithour & Mitzner, Philadelphia, Pa.—Pump, for use in boiler house. 560
- 1085 Pratt, R. V., New York, N. Y.—Injector, used in boiler house No. 3. 555
- 1086 Caw, A., New York, N. Y.—Two steam pumps, in boiler house. 560
- 1086a Worthington, Henry P., New York, N. Y.—Duplex pumping engine, furnishing total supply of water for the Centennial Exhibition. (*On Schuylkill river, foot of Lansdowne valley.*) 560
- 1087 Niagara Pump Works, Brooklyn, N. Y.—Pump, for use in boiler house. 560
- 1088 Norwalk Iron Works, South Norwalk, Conn.—Five Earle pumps, for use in boiler house No. 6. 561
- 1089 Blake Manufacturing Co., New York, N. Y.—Pumps, for supplying boilers in boiler house No. 4. 561
- 1090 Knowles Steam Pump Works, New York, N. Y.—Pumps, for supplying boilers in boiler house No. 3. 561
- 1091 Philadelphia Hydraulic Works, Philadelphia, Pa.—Pump, for use in boiler house No. 2. 561
- 1092 Burton, S., & Son, Waterford, N. Y.—Fire engine, for use. 564
- 1092a Scott-Uda, Mrs. M., New York, N. Y.—Aerial ladder. (*In fire station 1.*) 564
- 1093 Amoskeag Manufacturing Co., Manchester, N. H.—Fire engine and hose carriage, for use. 564
- 1094 Silsby Manufacturing Co., Seneca Falls, N. Y.—Two engines and hose carriages, for use. 564
- 1095 Nichols, S. B., Burlington, Vt.—Fire engine and hose carriage, for use. 564
- 1096 Hoyt, J. B., New York, N. Y.—Three driving belts, for main driving pulley. 564
- 1098 Gutta-Percha Co., New York, N. Y.—Hose and two driving belts. 566
- 1099 Lansing, H. S., Philadelphia, Pa.—Safety railroad gate. 575
- 1100 Cook & Pulver, New York, N. Y.—Lubricators, for use in annexes. 576
- 1101 Hanmore, J. W., New York, N. Y.—Felted, covering steam pipe in Machinery Hall. 576
- 1102 O'Hara, O. M., Boston, Mass.—Felted, covering steam pipe in Machinery Hall. 576
- 1103 Johns, H. W., New York, N. Y.—Felted, covering steam pipe in Machinery Hall. 576
- 1104 Chalmers, Spence & Co., New York, N. Y.—Felted, covering steam pipe in Machinery Hall. 576
- 1105 Sleuster, John T., Philadelphia, Pa.—Felted, covering steam pipe in Machinery Hall. 576
- 1106 Snider, D. M., Philadelphia, Pa.—Felted, covering steam pipe in Machinery Hall. 576

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

GREAT BRITAIN.

(South of North Avenue, Columns 16 to 17 A to E; also in Pump Annex.)

Metal, Wood, Stone, Cloth, Paper-working Machinery.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 1 Holmes, Joseph E., Payton, Walter, & Taylor, Fenner B., London.
 - a Rock boring machine. 500
 - b Coal and rock cutting machine. 502
- 2 Baird, William, & Co., Gartsherrie Iron Works, Coatbridge, Scotland.—Coal-cutting machine. 502
- 3 Hurd, Frederick, & Co., Wakefield.—Coal-cutting machine; ratchet wedge shovel. 502
- 4 Macdermott, Martin, London.—Rock and coal perforators; machines for undercutting coal; screw wedge for breaking down coal. 502
- 5 Hardy Patent Pick Co. (limited), Sheffield.—Implements for coal, ironstone, gold, and silver mining, for quarrying and excavating; cast steel picks. 502
- 8 Pickering, Jonathan, Globe Works, Stockton-on-Tees.—Pulley blocks, hoists. 503
- 9 The Dunston Engine Works Co., Gateshead-on-Tyne, Durham.—Stone breaker; combined stone breaker and bone cutter. 505
- 10 Kimberley, Nathan Gold, London.—Centrifugal pulverizing mills. 505
- 11 Siemens, Charles William, London.—Models of furnaces for metallurgical operations, glass melting, etc. 506
- 12 Smith, Dillwyn, Liverpool.—Mechanical stokers and fire bars. 506
- 13 Sugg, William, Vincent Works, London.—Gas burners; a new illuminating power meter. 509
- 18 Beesley & Sons, Abbey Road Boiler Works, Barrow-in-Furness.—Punching, shearing, and angle-cropping machine for iron, steel, or other metals. 515
- 18a Greenwood & Batley, Albion Works, Leeds.—Bolt forging machines. 515
- 19 Heap, Joshua, & Co. (limited), Oldham.—Tools and machines, taps, hobs, pipe: bolt-screwing and nut-tapping machines. 515
- 21 Shearer, Hugh, London.—Machine for dressing stone. 516
- 22 Lavers, Alfred Hamilton, London.—Testing machine to show strength of cement. 517

Machines and Implements of Spinning, Weaving, Felting, and Paper Making.

Machines and Tools for working Metal, Wood, and Stone.

- 23 Fleming, Thomas, & Son, West Grove Mill, Halifax.—Card clothing for carding machines, etc.; needle-point teeth. 520
- 24 Ambler, William, Bradford, Yorkshire.—Machine for making paper cop tubes used in spinning; machine for cleaning the teeth of wheel castings. 520
- 25 Mackenzie, Duncan, London.—Self-acting reader for the Jacquard loom. 520
- 26 Ingham, John, & Sons, Croft Head Works, Thornton, near Bradford.—Case of shuttles, etc., for weaving; tacking, shuttle pikes, stocks, and bowls for weaving. 520
- 27 Platt Bros., & Co. (limited), Hartford Works, Oldham, Lancashire.—Cotton gin. 521
- 28 Gadd, Thomas, Manchester.—Printing machine for large size garment rollers, angular engine; combined engraving and punching machine; setting-out table, with micrometer; combined varnishing and ruling machine; machine for setting out; ruling machine, cams, engravers' block, and lathe. 521
- 29 Lancaster, William, Willow Iron Works, Accrington, Lancashire.—Yarn-sizing dressing machine; self-stopping beaming machines; loom. 521
- 30 Booth, H., & Co., Preston, Lancashire.—Cotton-spinning machinery. 521
- 31 Carter, John, Halifax, Yorkshire.—Spinning frame. 521
- 31a Greenwood & Batley, Albion Works, Leeds.—Machine for tying in warps for looms. 521
- 32 Coats, J. & P., Ferguslie Thread Works, Paisley.—Spooling machine; thread-winding machine; machine for ticketing. 531
- 14 Roberts, William, Bootle, near Liverpool.—Self-acting painting machine for venetian blinds, laths, hoop iron, etc. 510
- 15 Massey, B. & S., Openshaw, Manchester.
 - a Circular saw for cutting hot iron and steel. 511
 - b Steam hammers; steam stamps; models of steam hammers; samples of forgings. 514
- 16 Wright, Peter, & Sons, Constitution Hill Works, Dudley, Worcestershire.—Anvils; vises; tools of various kinds; hammers. 514
- 17 Brooks & Cooper, Mousehole Forge, Sheffield.—Anvils, vises, hammers, shear steel, etc. 514
- 17a Fairbairn, Kennedy & Naylor, Leeds.—Quadruple boring machine. 515

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 12-15.

GREENWOOD & BATLEY, ALBION WORKS, LEEDS, ENGLAND,

Machinists to the British War Department, the Council of State for India, and
all the principal Foreign Governments,

EXHIBIT AT THE INTERNATIONAL EXHIBITION OF 1876,

PATENT BOOT SEWING MACHINE,
PATENT BOLT FORGING MACHINE,
PATENT PRINTING PRESS, and
PATENT MACHINE FOR TIEING IN WARPS, } See
Catalogue.

MAKERS OF

Special Machinery for the manufacture of Guns and
Gun Carriages, Small Arms and Ammunition of all
descriptions, including Cartridges, Shot and Shell,
Fuzes, Rockets, Bullets, Percussion Caps, &c.; also of
Gunpowder and Powder Cask Machinery, as well as of
all kinds of Machinery used in the production of War
Material and Implements.

MAKERS OF

Machinery on the latest system for Dressing, Preparing,
and Spinning Silk, Silk Waste and China Grass;
and of Special and General Tools for Engineering and
Railway Work, and Wood-Working Machinery.

Agent for China and Japan—Mr. JAMES DAVIDSON, Shanghai.



PARIS,



1867.



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WALSALL, STAFFORDSHIRE, ENGLAND,

Proprietors of the Patterns and Goodwill of Messrs. Best & Co.'s PLUMBING AND
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A MOST VALUABLE INVENTION—IS ENTIRELY SELF-ACTING.

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Manufacturers, SHORE WORKS, HUDDERSFIELD ENGLAND.

Gold Medal,

MCKAY'S EQUILIBRIUM DRILL,

Paris, 1875.



For Boring Tube Plates, Drilling Rivet Holes, and every descrip-
tion of Engine Work with perfect accuracy, without skilled
labour. Only requires true centre pop to guide cutters.

MENZIES & BLAGBURN,

NEWCASTLE-ON-TYNE, ENGLAND.



SAMUEL LAWSON & SONS

LEEDS,

MAKERS OF
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TOW, HEMP, AND JUTE.

LOOMS and PREPARING MACHINERY for
FLAX and JUTE WEAVING.

SPECIAL MACHINERY FOR THE MANUFACTURE OF TWINES.

SOLE MAKERS OF
GOOD'S PATENT COMBINED HACKLING and
SPREADING MACHINE.
PATENT AUTOMATIC SPINNING FRAMES,
And other special Machinery for the manufacture of Rope Yarns.

COUNCIL MEDAL, London, 1851.
GRAND MEDAL, Paris, 1867.

PRIZE MEDAL, Moscow, 1872.
DIPLOMA OF HONOUR, Vienna, 1873.

Corner of Belmont and Fountain Avenues,
NEAR THE LAKE.

FRENCH RESTAURANT,
LES TROIS FRÈRES PROVENCAUX.

The same which had such a great success in the Vienna
Exhibition, in 1873.

CH. VERDIER,
of the MAISON DORÉE, of Paris, Proprietor.
Near the Lake, opposite the U. S. Government Building.

Cloth and Paper-working Machinery, Motors, Pumps.

35 Mussey & Leachman, Leeds.—Hydraulic cloth pressing and finishing machine. 522

36 Lawson, Samuel, & Sons, Hope Foundry, Leeds.—Machinery for carding, preparing, and spinning jute; cop-winding machine. 524

37 Fairbairn, Kennedy, & Naylor, Leeds.—Machinery for preparing and spinning jute, hemp, flax, tow, and similar fibres. Carding engine; drawing, roving, and spinning frames. 524

38 Marshall, T. J., & Co., Campbell Works, Kingsland.—Dandy rolls and wire cloth, for paper making, and pulp strainer. 525

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

39 Gimson & Coltman, Leicester.—Knitting machines; rip top and circular machines. 531

40 Wilson, Newton, & Co., London.—Sewing machines, their appliances and apparatus. 531

41 Kimball & Morton, Glasgow.—Sewing machines; machines for sewing sails and sacks over-edge. 531

43 Sanson, Robert Bell, London.—Spring arm endless band knife; cloth-cutting machine; parallel pressing machine for tailors' use. 531

44 Air Burning Co. (limited), Glasgow.—Ironing table. 534

45 Broadbent, Thomas, Chapel Hill, Huddersfield.—Hydro extractor, for extracting water from wool, cotton, etc. 534

Machines and Apparatus for Type-Setting, Printing, Stamping, Embossing, and for Making Books, and Paper Working.

46 Beatty, Francis S., Dublin.—Lithographers' manifold transfer machines, for the reproduction of printed matter of enlarged or reduced dimensions from that of the original. 540

46a Greenwood & Batley, Albion Works, Leeds.—Printing machine. 540

47 Lilly, John, & Co., London.—Perfecting and single cylinder printing presses. 540

48 Walter, John, London.—Printing press. 540

49 Shaw, William, London.—Logotypes and cases, shown in operation; printing press. 540

Motors and Apparatus for the Generation and Transmission of Power.

50 Green, Edward, & Son, Manchester.—Fuel economizer for heating the feed water for steam boilers. 550

51 Davey, Paxman, & Co., Colchester, Essex.

a Vertical boiler and water heater. 550

b Portable steam engine; vertical engine; steam corn dryer. 552

52 Galloway, W. & J., & Sons, Knott Mill Iron Works, Manchester.—Steel boilers, for use in the British section. 550

55 Wright, William, Vulcan Foundry, Coatbridge.—Hot water boilers for heating dwellings, conservatories, etc. 550

56 Moncrieff, John, North British Glass Works, Perth, Scotland.—Steam boiler water gauge glasses. 551

57 Wier, Marshall Arthur, London.—Pneumatic motor, water meter, hydro-gyrometer, locomotive speed indicator, pneumatic gyrometer, reciprocating counter. 551

57a Holmes, Joseph E., Payton, Walter, & Taylor, Fenner B., London.—Cylinder engine; revolving steam engine and air compressor. 552

57b Hurd, Frederick, & Co., Wakefield.—High-speed air compressor. 552

57c Smith & Starley, Trafalgar Works, Coventry.—Electric motors. 552

58 Thermo-Electric Generator Co. (limited), London.—Thermio batteries worked by gas, charcoal, or coke, in nature approaching the appearance of a gas stove. 552

58a Moy, Thomas, London.—Small steam engines for tramways, etc. 552

58b King, F. L.—Steam engines. 552

59 Turner, Charles, Southampton.—Couplings for propeller shafts and other purposes. 554

60 Hewitt, William, Bristol.

a Model of improved screw propellers; model of an improved principle for driving machinery. 553

b Breech-loader gun; gun carriage. 266

61 Vansittart, Henrietta, Mrs., Twickenham.—Screw propeller. 554

62 Hicks, James Joseph, London.—Enamel water gauges for steam boilers. 555

63 Moncrieff, John, North British Glass Works, Perth.—Gauge glasses for indicating height of water in steam boilers. 555

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.

63a Pickering, Jonathan, Globe Works, Stockton-on-Tees.—Steam and water cylinder; steam pump. 560

64 Gwynne, John & Henry, Hammersmith Iron Works, London.—Model of compound surface-condensing engines with centrifugal pumps made to 1/4 scale. 560

64a Haynes, Thomas, & Sons, London.

a Platform pump; garden syringe. 560

b Water bringer, for overcoming friction caused by drawing water through long lengths of hose; self-acting hose coiler. 564

65 Gwynne & Co., London.

a Centrifugal pumps and engines. 560

b Gas exhaustor and engine. 561

66 Ellis, William Irlam, Manchester.—Blower or exhaustor for air or gas. 561

67 Appleby Bros., London.—Steam cranes. 563

68 Wallace & Tucker, Belfast.—Fire annihilator. 564

70 Needham & Kite, Phoenix Iron Works, London.—High pressure filter press. 565

Railway Plant, Agricultural Machinery, Vessels.

71 Lawrence & Co., London.—Refrigerators; mashing machines, spargers, etc. 565

72 Dennis, T. H. P., & Co., Anchor Iron Works, Clemsford.—High pressure valves for steam, hot or cold water, or gas. 566

Railway Plant, Rolling Stock, and Apparatus.

73 Welch, Alfred, London.—Railway cattle wagons. 571

74 Williams, Richard Price, London.—Continuous railway crossings; switches for doing away with facing points on railways. 574

75 Brierley, Sons, & Reynolds, London.—Railway signal model of railway junction. 574

76 Seaton, William, London.—Saddle rail and permanent way construction. 574

77 Saxby & Farmer, London.
a Models of railway switches; junction, with switches and signals. 574
b Railway signals, and level crossing gates. 575

Machines used in preparing Agricultural Products.

78 Sutcliffe, James S., Bacup, Lancashire.—Middlings flour separator. 580

79 Mirlees, Tait, & Watson, Glasgow.—Machinery in motion, consisting of sugar mills, valveless engine working an air pump for a vacuum pan, and driving centrifugal machines. 581

80 Collier, Luke, Rochdale.—Confectioners' machines. 582

81 Andrew, J. E. H., Stockport.—Machines for spinning tobacco; samples of twist tobacco from Europe. 584

Aerial, Pneumatic, and Water Transportation.

82 Siebe & Gorman, London.—Diving apparatus for two divers; figure of diver in diving suit, with the helmet and speaking apparatus. 594

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

82a Wallace & Tucker, Belfast.—Model of turret system of life preservation, in case of shipwreck. 594

83 Cruickshank, A. B., Dundee, Scotland.—Self-acting safety cleats for boats and yachts. 594

84 Logan, John Maxwell, Cambridge.—Model of four-oared racing boat, to take to pieces for convenience in traveling. 594

85 Inman Steamship Co. (limited), Liverpool.—Full rigged model and oil painting of the steamer "City of Berlin." 594

86 Hill & Clark, London.—Boat disengaging hooks. 594

86a Bradford, William Henry, Great Saughall, near Chester.

a Model of life boats, lateen rig, life or salvage boat. 594

b Model of a ship's course indicator. 597

87 Clark, Standfield, & Co., London.—Models of floating and gridiron depositing docks. 596

88 Roby, George, Wigan.—Hydro-pneumatic and other vessels for the storage of gunpowder, etc. 596

90 Wood, John William, Harwich, Essex.—Iron self-adjusting shot hole, rivet hole, and leak stopper. 597

91 Martin, Claude, London.—Self-canting anchors; chain cables; model of H. M.'s turret ram "Alexandra." 597

92 Gumpel, Charles Godfrey, London.—Ship's rudder. 597

92a Cooke, Joseph, & Co., Midland Davy Lamp Works, Birmingham.—Miners' safety lamps. 120

92b Bainbridge, Emerson, Duke of Norfolk's Collieries, Sheffield.—Miners' safety lamp. 120

(N.B.—Certain exhibits of machinery from Great Britain are installed in the Main Building, and catalogued in Part I.

CANADA.

(Central Aisle, Columns 1 to 7.)

Metal, Wood, Stone, Cloth, Clothing-working Machinery.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 1 Hannahan, Joseph, Ottawa, Ont.—Rock-drilling bits. 500
 3 Symonds, W. S., & Co., Halifax, N.S.—Gold quartz crushing machine. 505
 4 Freeland, R., Toronto, Ont.—Soap-making machinery. 508

Machines and Tools for Working Metal, Wood, and Stone.

- 9 Kennedy, W., & Son, Owen Sound, Ont.—Facing and jointing planer. 510
 11 Machine Co., Bowmanville, Ont.
 a Turning lathe for wood, moulding machine, planing and notching machine. 510
 b Metal turning lathe, planing machine. 515
 14 Watrous Engine Works Co., Brantford, Ontario, Canada.—Twenty-horse power portable saw mill; capacity, six to ten thousand feet per day; shipping weight, eight tons. A strictly portable saw mill, practical, efficient, economical, and durable; obtained first medal and diploma at Exposition Santiago Chili, South America, September, 1875. 510
 15 Mitchell & Teeple, Harriaton, Ont.—Wood-sawing machine. 510
 18 McKecknie & Bertram, Dundas, Ont.—Wood-moulding machine. 510
 20 Harris, James, & Co., St. John, N. B.
 a Shingle machine. 510
 b Register grates. 513
 21 Lordly, Howe, & Co., St. John, N. B.—Turning lathe. 510
 22 Nelson, Thomas, & Co., Dundas, Ont.—Cast iron water pipe. 513
 23 Campbell, George, Toronto, Ont.—Portable saw forges. 514
 24 Mitchell, R., & Co., Montreal, Q.—Lead tube bending machine. 515
 26 McKecknie & Bertrand, Dundas, Ont.—Iron turning lathes, radial drill, slotting and iron shaping machines. 515
 27 Tool Co., Hamilton, Ont.—Engine lathe, bolt cutter, drilling machine, portable radial drill, steam hammer. 515
 29 Stephenson, M., Stratford, Ont.—Hand-drilling machine, for drilling both the fish holes in railroad iron at the same time in their exact position and without measuring, effecting a great saving in labor. 515
 30 Smark, J., Brockville, Ont.—Drilling machines. 515

- 31 Fisher, J., & Co., Kincardine, Ont.—Clipping boiler plate machine. 515
 32 Mitchell, R., & Co., Montreal, Q.—Lead tube bending machine. 515
 33 Dunn, P., Cote St. Paul, Q.—Wire nail machine. 515
 34 McFarlane, Thum, & Co., Fredericton, N. B.—Vertical power drill. 515
 35 Coore, E. R. N., & Co., St. John, N. B.—Nail machine. 515
 37 Bulmer & Sheppard, Montreal, Q.—Brick machine. 517
 37a Tiffany, Geo. S., London, Ont.—Tile and brick machine. 517

Machines and Implements of Spinning, Weaving, Felting, and Paper Making.

- 38 Powers, S. H., Woodstock, N. B.—Self-acting hand loom. 521
 39 Becker, A., Montreal, Q.—Sample of card clothing. 522
 40 Boeck, Chs., Toronto, Ont.—Comb-ing machines for brush makers. 524

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

- 44 Wilkie & Osborne, Guelph, Ont.—Sewing machines. 531
 45 Wanzer & Co., Hamilton, Ont.—Sewing machines. 531
 48 St. Amand, O., Quebec, Q.—Sewing machine. 531
 49 Lawlor, J. D., Montreal, Q.—Sewing machines. 531
 51 Williams, C. W., Manufacturing Co., Montreal, Q.—Sewing machines. 531
 52 Harris, Th., Montreal, Q.—Sewing machine needle sharpener. 531
 55 Popham, James & Ebenezzer, Montreal, Ca.—Popham steam peg breaker—now being patented both in Canada and the United States—will cut off and entirely remove the peg-ends that have so long troubled manufacturers and dealers in boots and shoes, and leaves the inside of the sole as free from peg-points and nails as the outside. Attached to the machine will be found samples of the work done, a close inspection of which will conclusively demonstrate the reality of the improvement. 533
 56 Clarke, R., St. John, N. B.—Lasts. 533

Engines, Boilers, Pumps, Railway Plant and Appliances.

Motors and Apparatus for the Generation and Transmission of Power.

- 62 Tandy, G. J., Kingston, Ont.—Steam boiler. 550
- 63 McKay, Adam, Dartmouth, N. S.—Model steam boiler. 550
- 64 Kennedy, Wm., & Sons, Owen Sound, Ont.—Water-wheel. 551
- 65 Tuerk, F. W., Berlin, Ont.—Working model water-wheel. 551
- 66 Barber & Harris, Meaford, Ont.—Water-wheel. 551
- 67 Goldie & McCulloch, Galt, Ont.
a Turbine water-wheel. 551
b Steam engine. 552
- 69 Harris, J., & Co., St. John, N. B.—Water-wheel. 551
- 70 Fleck, A., Ottawa, Ont.—Oscillating steam engine. 552
- 71 Thomson Williams' Manufacturing Co., Stratford, Ont.—Stationary engine. 552
- 72 Martin, Cha., Belleville, Ont.—Vertical steam engine. 552
- 75 Piper, Thos., Hamilton, Ont.—Model four-cylinder engine. 552
- 77 Brush, Geo., Eagle Foundry, Montreal, Ca.—Portable steam hoisting engine, for use on wharves, in mines, quarries, coal yards, etc., and erection of buildings; is very compact and easily handled; all levers and working parts being within easy reach of the driver, without moving from his post. 552
- 83 Fleming, Geo., & Sons, St. John, N. B.—Oscillating engine. 552
- 85 Smith, J. G., Dartmouth, N. S.—Miniature steam engine. 552
- 86 Dixon, Smith, & Co., Toronto, Ont.—Belting. 553
- 87 Sandall, John, Moncton, N. B.—Valve link motion. 553
- 91 McKeough, J. W., Chatham, Ont.—Brass dome. 555
- 92 Morrison, James, Toronto, Ont.—Steam, vacuum, hydraulic gauges. 555
- 93 Piper, Thos., Hamilton, Ont.—Steam boiler detector gauge. 555
- 94 Myers, S., & Son, St. John, N. B.—Governor. 555
- Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.**
- 95 Patrick, Rob., Galt, Ont.—Rotary pump. 560
- 96 Cox, H. W., Peterborough, Ont.—Rotary force pumps. 560
- 97 Oakville Manufacturing Co., Oakville, Ont.—John Dayer, Andrew J. Bounsall, and George C. Bounsall, foundry and iron pump manufactory; force, well, and cistern pumps. 560
- 100 Bowes, E., & Son, Stratford, Ont.—Force pumps. 560
- 101 Webster, Stephen, St. Catharines, Ont.—Oil-storing tank. 560
- 102 Smart, J., Brockville, Ont.
a Cistern, well, and force pump. 560
b Jack screws. 563
- 105 Barnes, C. C., St. John, N. B.—Rotary pump. 560
- 106 Jones, C. C., Fredericton, N. B.—Barrel pump. 560
- 107 Wilson, Clarke, & Co., Yarmouth, N. S.—Ship pump. 560
- 111 Small & Fisher, Woodstock, N. B.—Barrel lifter. 563
- 112 Dailey, M. E., Ottawa, Ont.—Telescope trestle. 563
- 113 Ronald, John D., Chatham, Ont.—Steam fire engine, hose cart and hose. 564
- 117 Murphy & Harle, Montreal, Q.—Pneumatic fire extinguisher. 564
- 118 Bustin, Robert, St. John, N. B.—Fire escape. 564
- 119 Smith, H. F., Toronto, Ont.—Soda water fountain. 565
- 120 Sells, H., Vienna, Ont.—Cider mill and press. 565
- 121 Brazil, P., Barrie, Ont.—Cider mill and press. 565
- 122 Date, John, Montreal, Q.—Diving apparatus. 567
- 123 Pitts, D. H., Halifax, N. S.—Submarine armor. 567
- Railway Plant, Rolling Stock, and Apparatus.**
- 124 Meyer, F. W. A., Montreal, Q.—Drawing of engine and tender. 570
- 127 Knolt, Kennard, Peteraville, L., Ont.—Cattle car and refrigerating tender. 571
- 128 Brydon, Robert, Newberg, Ont.
a Grain car. 571
b Grain car door fastener. 573
- 129 Muir, Thomas, London, Ont.—Rail joint protector and car-coupler. 572
- 130 McNabb, M.—Car coupler. 572
- 131 Christholm, R. K., Oakville, Ont.—Car coupler. 572
- 132 Chisholm, R. N., Oakville, Ont.—Car coupling. 572
- 132a Griffin, J. K., Toronto, Ont.—Model of car coupler. 572
- 133 Richard, E. O., & Bro., St. Roch, Q.—Car brakes and coupling. 572
- 134 Car Wheel Co., Toronto, Ont.—Car wheels and axles. 573
- 136 Harris, J., & Co., St. John, N. B.—Railroad car wheels and axles. 573
- 136a Osborne, Henry, St. Andrews, Q.—Model of car axle. 573
- 137 Von Staden, W. G., Strathroy, Ont.—Bent posts and rafters for railroad cars. 574
- 140 Nunn, W. C., Belleville, Ont.—Railway telegraph signals, with revolving and fixed lamps, and electric gong. 575
- 143 Miller, Flanges Co., Fredericton, N. B.—Locomotive flanges. 576
- 144 Ramsay, R. H., Cobourg, Ont.—Ramsey's car truck shifting apparatus, patented March 14, 1876. The power required to run a car on the level track is sufficient to remove the trucks, and re-

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

Agricultural Machinery, Boats, Vessels.

- place them again. Expense reduced from twelve thousand dollars to one hundred. Correspondence with railroad companies invited. 576
- 147 Colford, Henry, Halifax, N. S.—Spark arresters for house, factory, and locomotive. 576

Machines used in Preparing Agricultural Products.

- 148 Rochelle, L. N. & A. H., St. Anselme, Ont.—Magnetic separator and dryer. 580
- 149a Wilson, J. P., Montreal, Q.—Vacuum pan. 581
- 149 Copping, G. H., Toronto, Ont.—Lozenge machine. 582
- 151 Scales, Rob., Toronto, Ont.—Evaporator and tobacco lump machine. 584
- 152 Adams, J. L., Montreal, Q.—Tobacco cutter. 584
- 153 Marengo, J. & A., Montreal, Q.—Cigarette machine. 584

Aerial, Pneumatic, and Water Transportation.

- 155 Herald, D., Gore's Landing, Ont.—Canoes. 594
- 156 English, W., Peterborough, Ont.—Hunting canoe. 594
- 159 Power, W., & Co., Kingston, Ont.—Ship models. 594
- 160 Lapierre, Zephirin, Isle of Orleans, Q.—Sailing boat rigged, rowing boat, winter canoe. 594
- 163 Baldwin, P., St. Roch, Quebec, Q.—Ship model. 594
- 164 Dunn & Samson, Levis, Q.—Ship models. 594
- 165 Rose, N., Levis, Q.—Ship models. 594
- 166 Dinning, H., Quebec, Q.—Ship models. 594
- 167 Marquis, F. H., Levis, Q.—Ship models. 594
- 168 Auger, E., Quebec, Q.—Ship models. 594
- 169 Cotman, W., Quebec, Q.—Ship models. 594
- 170 Samson & Co., Quebec, Q.—Ship models. 594
- 171 Gingras, E., Quebec, Q.—Ship models. 594
- 172 Oliver, J., Quebec, Q.—Ship models. 594
- 173 Oliver, F. H., Quebec, Q.—Ship models. 594

- 174 Quebec Advisory Board, Quebec, Q.—Ship models. 594
- 175 Sewell, E. W., Levis, Q.—a Winter canoe, drawings of safety ship, ship and yacht models. 594
b Drawing of steamship for Canadian trade. 595
- 176 Robitaille, Th., Quebec, Q.—Complete cod-fishing boat; "Micmac" bark canoe. 594
- 177 Charland, W., Levis, Q.—Ship model. 594
- 178 Grenier, Frs., Isle of Orleans, Q.—Pilot boat. 594
- 179 Girard, A., Murray Bay, Q.—Peplar canoe. 594
- 182 Ross, Elizabeth, Portland, N. B.—Single scull racing boat, spoon-set oars, set single scull oars, set oars, life boat model. 594
- 183 Barrill, Jos., Yarmouth, N. S.—Ship model, improved gear for reefing sail. 594
- 184 Moreley, E., Dartmouth, N. S.—Ship models. 594
- 185 Garmount, Wm.—Ship model. 594
- 186 Dailey, M. E., Ottawa, Ont.—Model ocean ship. 595
- 187 Merritt, Abel, Chatham, Ont.—Propeller boat. 595
- 188 Richeheu & Ontario Navigation Co., Montreal, Q.—Steamboat models. 595
- 189 Wildgoose, F. H., Montreal, Q.—Steamboat model. 595
- 190 Meyer, F. W. A., Montreal, Q.—Drawing longitudinal section steamboat. 595
- 192 Beutay, H., Quebec, Q.—Dragging or grappling apparatus. 596
- 193 Carroll, S., Widden, Ont.—Marine compass, automatic ship trimmer. 597
- 194 Pitts, D. H., Halifax, Ont.—Ship windlass and cable brake. 597
- 195 Mosler, Geo. J., Maitland Island, N. B.—Ship wheel. 597
- 196 Harris, James, & Co., St. John, N. B.—Capstan. 597
- 197 Pitts, D. H., Halifax, N. S.—Mast hoop clamp, cable brake, metal jib hank. 597
- 198 Couvrette & Frigon, Montreal, Q.—Stern of ship (model). 597
- 198a Harris, James, & Co., St. John, N. B.—Ships' iron knees, straps. 284
- 198b Coldbrook Rolling Mills Co., St. John, N. B.—Cut and clinch nails, spikes and knees. 284
- 198c Weddleton, J. B., Yarmouth, Ont.—Head earrings for ships. 284

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

FRANCE.

*(North of Central Aisle, Columns 1 to 7.)***Metal, Wood, Stone, Cloth-working Machinery, Motors.****Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.**

- 1 Fleury, Jules Martin, Paris.—Grinding mill. 505
- 2 David Bros., Charleville (Ardennes).—Portable forges. 506
- 3 Perret, Michel, Paris.—Apparatus for combustion. 506
- 4 Goyard, F., Paris.—Crucibles and furnaces. 506
- 6 Enfer, Ernest, Paris.—Portable forges; forges for the laboratory; gas pressure bellows apparatus; bellows. 506
- 7 Chenaillier, Paris.—Universal evaporator. 506
- 8 Faure & Kessler, Clermont-Ferrand.—Apparatus for the concentration of sulphuric acid. 508
- 9 Desmoutis, Quennessen, & Le Brun, Paris.—Platina apparatus. 508
- 10 Pelouze, E., & Audouin P., Paris.—Condenser for gas works. 509
- 11 Lascole, A., Paris.—Gas apparatus. 509

Machines and Tools for Working Metal, Wood, and Stone.

- 12 Arbey, F., Paris.—Wood-working machinery. 510
- 13 Branche, H., Paris.—Machines and tools. 510
- 14 Rous, Edmond, Paris.—Tools of precision. 510
- 15 Dugoujon, sr., Paris.—Saws. 510
- 17 Limet-Laparelle & Co., Paris.—Files. 515
- 18 La Quintinie, A., & Co., Paris.—Machines and tools for goldsmiths; designs of machines for soap, confectionery, and matches. 515
- 20 Durand, F., & Marais, Paris.—Brick machines. 517

Machines and Implements of Spinning, Weaving, Felting, and Paper Making.

- 21 Guinet, Ant., & Co., Lyons.—Silk-weaving looms. 520
- 22 Richard, J. S., Paris.—Machines and looms for textiles. 521
- 23 Pierron & Dehaitre, Paris.—Weaving machine. 522

- 24 Couture, Paris.—Breaking machine for textile fabrics. 523
- 25 Maigrou, F. A., Paris.—Rope machine. 524
- 26 Deny, Louis, Paris.—Open copper cylinder and refiner for paper manufacture. 525
- 27 Thomine, F., Paris.—Machine for the manufacture of fishing nets. 527

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

- 28 Legat, D., Paris.—Machine for sewing straw hats. 531
- 29 Cornely, E., Paris.—Embroidering machines. 531

Machines and Apparatus for Type Setting, Printing, Stamping, Embossing, and for Making Books, and Paper Working.

- 29a Alauzet, Paris.—Printing machines. 540
- 30 Coblenz, Paris.—Electrotypes. 541
- 31 Derriey, Ch., Paris.—Typography, engraving, and electrotypes. 542
- 31b Derriey, Ch., Paris.—Printing type. 542
- 32 Tucker, Paris.—Types and cuts. 542
- 33 Lecerf, L., Paris.—Printing materials. 543
- 34 Vital, A., Paris.—Rollers for lithographic presses. 543

Motors, and Apparatus for the Generation and Transmission of Power.

- 35 Leroy, François, Marseilles.—Models of marine boilers. 550
- 36 Fontaine, Hippolyte, Paris.—Steam engines. 552
- 37 Electro-Magnetic Machine Manufacturing Co., Paris.—Gas machines, galvanoplastic machine, machine to transmit power. 552
- 38 Mignon & Rouart, Paris.—Noiseless gas motors. 552
- 39 Chauveau, Paris.—Steam engines. 552
- 40 Breguet, Paris.—Electro-magnetic machines. 552
- 41 Rous, Edmond, Paris.—Hermetic clasps for oil cups, etc. 553

Motors, Hydraulic Apparatus, Railway Plant, Agricultural Machinery.

- 42 Welby, Rouen.—Belting. 553
 43 Jacob, Ch. Moise, Paris.—Oiling cushions. 553
 44 Domange, Lemierre, & Co., Paris.—Belting. 553
 45 Perreux, L. G., Paris.—Screw propeller. 554
 45a Bourdin, Paris.—Motor for sewing machines. 554
 46 Dechamp, C., Lyons.—Safety boiler apparatus. 555
 47 Casaubon, Dominique, Paris.—Cocks for steam, water, and gas pumps, and water closets. 555
 48 Lion & Guichard, Paris.—Metallic manometer. 555
 49 Macabies, Paris.—Automatic feeder. 555
 50 Rigollot, Paris.—Cocks for water, steam, and gas. 555
 50a Serrin, Paris.—Regulator for electric light. 555
 51 Cuau, Paris.—Boiler injector. 555
 52 Coux des Roseaux, Asnieres, near Paris.—Automatic oil cups for steam machines; fire-proof insulator for steam pipes. 555

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.

- 53 Neut, L., & Dumont, L., Paris.—Centrifugal pumps. 560
 54 Garlaudat, Paris.—Refrigerating apparatus. 562
 55 Enfer, A., jr., Paris.—Portable forges and bellows. 562
 56 David Bros., Charleville (Ardennes).—Portable forges. 562
 57 Enfer, Ernest, Paris.—Portable forges, bellows, gas apparatus. 562
 58 Morane, jr., Paris.—Hydraulic press for candle manufacture. 563
 59 Chretien, J., Paris.—Automatic apparatus for unloading coal. 563
 60 Rous, Edmond, Paris.—Pulleys and tackles. 563
 61 Mégy, Echeverria, & Bazan, Paris.—Elevators, regulators, etc. 563
 62 Gaussart, Epernay (Marne).—Machines for charging wines with gas. 564
 63 Constant, Port-a-Binson (Marne).—Wine press. 565
 64 Appert-Mandart, Reims (Marne).—Hooks and clasps for champagne. 565
 65 Lejeune, Epernay (Marne).—Machine for charging wines with gas. 565
 66 Renard, Epernay (Marne).—Wires and strings for champagne. 565
 67 Paillet & Co., Epernay (Marne).—Corks. 565
 68 Casaubon, D., Paris.—Soda water machines; siphons. 565
 69 Freal, Epernay (Marne).—Bottling machines. 565
 70 Gervais, E., Bordeaux.—Bottling machines. 565
 71 Guéret Bros., Paris.—Soda water machine. 565

- 72 Logette, Ay (Marne).—Clasps for bottles and machines for applying. 565
 73 Maldine, H., Paris.—Soda water machines, siphons. 565
 74 Maurice, Widow, & Guenin, Epernay (Marne).—Bottling machines. 565
 75 Michelot, jr., Epernay (Marne).—Stands and cases for wines. 565
 76 Thessier, Fevre, Paris.—Table apparatus for Seltzer water. 565
 77 Tricourt, A., Reims (Marne).—Wine-making machines. 565
 78 Mestre, A. de, Bordeaux.—Bottling machines. 565
 79 Mondollot, A., Paris.—Soda water machine, siphons. 565
 80 Cicile-Larbre, Reims (Marne).—Bottle cleaners. 565
 81 Durafort, Paris.—Soda water machine. 565
 82 Fisse-Thirlion, & Co., Reims.—Bottling machine. 565
 83 Rigollot, Paris.—Cocks for water, steam, and gas. 566
 84 Perreux, L. G., Paris.—Rubber valves. 566
 85 Giffard & Berger, Paris.—Ice machines. 568
 86 Carré, E., Paris.—Ice machine. 568

Railway Plant, Rolling Stock, and Apparatus.

- 87 Edoux, Leon, Paris.—Special system for mountain railroads. 570
 88 Joliot, S., Vincennes.—Carbrakes. 572
 89 Le Bas, Paris.—Automatic clutch. 572
 90 Arbel Lucien, Rive-de-Gier (Loire).—Forged iron wheels for locomotives and cars. 573
 91 Brunon Bros., Rive-de-Gier (Loire).—Wheels manufactured by hydraulic pressure. 573

Machines used in Preparing Agricultural Products.

- 92 Aubin & Baron, Paris.—Bolting mill. 580
 93 Durrachmidt, Lyons.—Emery millstones. 580
 93a Deplanque, Son, sr., Maison-Alfont (Seine).—Emery millstones. 580
 94 Beyer Bros., Paris.—Soap and chocolate machines. 582
 95 Hermann, G., Paris.—Chocolate machines. 582
 96 Durvie, Ivry-la-Bataille (Eure).—Mechanic kneading machine. 582
 97 Beyer Bros., Paris.—Soap and chocolate machines. 585

Aerial, Pneumatic, and Water Transportation.

- 98 General Transatlantic Co., Paris.—Model of the steamship "Pereire." 595

GERMANY.

(South of Central Aisle, Columns 1 to 7, and Pump Annex.)

Metal, Wood, Stone, Cloth, Paper-working Machinery, Pumps, etc.

Machines, Tools, etc., of Mining, Chemistry, etc.

- 1 Sparre, Julius von, Dortmund.—
Model of a drill. 500
- 2 Wünschmann, Reinh., Leipsic.—
Candle-making machine. 508

Machines and Tools for Working Metal, Wood, and Stone.

- 3 Kahlke & Detlefsen, Hamburg.—
Cutting machine and apparatus for cleaning boiler tubes. 515
- 3a Schäffer & Budenberg, Buckau.—
Polishing machines. 516
- 4 Schlickeysen, C., Berlin.—Brick, turf, cement, and clay machines. 517
- 5 Loeff, Paul, Berlin.—Model of a kiln for bricks, etc. 517

Machines and Implements of Spinning, Weaving, etc.

- 6 Windmüller & Meynen, Zwischenahn, Oldenburg.—Wooden spools. 520
- 8 Grothe, H., Berlin.—Models. 521
- 9 Bodemer, Georg, Zachopau.—Apparatus for spinning. 521
- 10 Beuthner Bros., Berlin.—Carders. 522
- 11 Mechanical Card Factory, Mittweida.—Cards. 522

Machines, etc., used in Sewing, Making Clothing, etc.

- 12 Huhn, Heinr., & Co., Aix-la-Chapelle.—Needles. 530
- 13 Lammertz, Leo., Aix-la-Chapelle.—Needles. 530
- 14 Bellé, R., Aix-la-Chapelle.—Needles. 530
- 15 Pastor, Ph. H., Sons, Burtscheid, near Aix-la-Chapelle.—Needles. 530
- 16 Zimmermann, Jos., Aix-la-Chapelle.—Needles. 530
- 17 German Sewing Machine Factory, Frankfort-on-Main.—Sewing machines. 531
- 18 Müller, Cl., Dresden.—Sewing machines. 531
- 19 Kiehle, R., Leipsic.—Sewing machines. 531
- 20 Hamburg-American Sewing Machine Factory Joint Stock Co.—Sewing machines, etc. 531
- 21 Schmalz, F. G., Altenburg.—Machines for making gloves. 532
- 22 Hemmer, L. Ph., Aix-la-Chapelle.—Fulling and washing machine. 534
- 23 Dausch, J. G., Munich.—Instruments and apparatus for watchmakers. 535

Machines for Printing, Making Books, Paper Working, etc.

- 26 Traiser, Carl, Darmstadt.—Ruling machine. 541
- 27 Lots, Ferd., Offenbach-on-Main.—Lithographic machinery. 543

Motors, Power Generators, etc.

- 29 Schilling, F. A., Bremerhaven.—Steam engines. 552
- 30 Gas Motor Factory, Deutz.—Gas motors. 552
- 31 Blancke, C. W. J., & Co., Merseburg.—Pyrometer, steam gauges, vacuum meters, etc. 555
- 32 Bodemer, Georg, Zachopau, near Chemnitz.—Regulators. 555
- 33 Schäffer & Budenberg, Buckau, near Magdeburg.—Steam gauges, pyrometers, lubricators, etc. 555
- 34 Blanke, Em. A. R., Frankfort-on-Oder.—Steam packing, etc. 555
- 35 Gehrckens, C. Otto, Hamburg.—Stuffing boxes, steam packing. 555
- 36 Wertheim, Louis, Bornheim, near Frankfort-on-Main.—Steam packing. 555

Hydraulic and Pneumatic Apparatus.

- 37 Alléoud, Emanuel, Metz.
a Siphon pumps. 560
b Mechanical lever. 563
- 38 Weyhe, Wilh., Bremen.—Rotary pumps. 560
- 39 Royal Saxon Fire Extinguisher Co., Leipzig.—Fire extinguishing apparatus. 564
- 40 Schultz, Ernst, Aschaffenburg.—Atmospheric apparatus for firemen, miners, etc. 564

Railway Plant, Rolling Stock, etc.

- 42 Glöckner Bros., Tschirndorf, near Halbau.—Blocks for brakes. 572
- 43 Camossi & Schlösser, Frankfort-on-the-Main.—Railway switch. 574
- 43a Schäffer & Budenberg, Buckau.—Spark catchers. 576

Machines used in Preparing Agricultural Products.

- 43b Israel Bros., Dresden.—Mill and grind stones. 580
- 43c Osenbruck & Co., Hemelingen, near Bremen.—Cigar moulds. 584

Aerial, Pneumatic, and Water Transportation.

- 44 Ducker, Baron F. F. von, Bückeburg.—Drawing of a wire-rope railway. 590
- 46 Hamburg-American Steamship Co., Hamburg.—Model of a mail steamship. 595

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

Ores, Metallurgical Products, Weapons, Railway Plant.

Minerals, Ores, Stone, Mining Products.

- 47 Krupp, Fried., Essen. — Ores and raw products. 100

Metallurgical Products.

- 48 Krupp, Fried., Essen. — Samples of fractured iron and steel. 111

Weapons, etc.

- 49 Krupp, Fried., Essen. — Cannon and shot. 267

Railway Plant, Rolling Stock, etc.

- 50 Krupp, Fried., Essen. — Axles, wheels, pistons, springs, etc. 573

AUSTRIA.

(South of South Aisle, Columns 1 to 5.)

Mining, Weaving, Agricultural Machinery, Motors.

Machines, Tools, etc., of Mining, Chemistry, etc.

- 1 Rosenegger, Josef, Oberalm, near Hallein, Salzburg. — Model of a glass-melting furnace, cylinder furnace. 506

Machines and Implements of Spinning, Weaving, etc.

- 3 Schram, Willibald, Vienna. — Jacquard looms. 521
4 Surber, J. Jacques, Vienna. — Weavers' reeds and beddles. 527

Motors, Power Generators, etc.

- 5 Hock & Co., Julius, Vienna. — Petroleum motor with pump. 530
6 Popper, Joseph & David, Vienna. — Patent boiler incrustation preserver, boiler fittings. 550

Railway Plant, Rolling Stock, etc.

- 7 Tagleicht, Karl, Vienna. — Locomotive spark catcher and flue. 576

Machinery used in Preparing Agricultural Products.

- 8 Vojtěchovsky & Reznicek, Prague. — Machines for candy production. 582

SWITZERLAND.

(Section 1, Pump Annex.)

Railway Appliances.

Motors, Power Generators, etc.

- 1 Sulzer Bros., Winterthur, Canton Zurich. — Model of a new system of reversing gear for valve engines. (*Pump annex.*) 555
1a Pictet, Raoul, & Co., Geneva. — Machine for producing ice with the aid of anhydrous sulphurous acid. 568

Railway Plant, Rolling Stock, etc.

- 2 Swiss Manufacturing Co., Neuhausen, near Schaffhausen. — Model of an apparatus for heating railway carriages. (*Pump annex.*) 571

Machines pertaining to watchmaking are exhibited in Swiss section, Main Building, and catalogued in that volume.

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

BELGIUM.

(North of North Aisle, Columns 7 to 18.)

Metal, Cloth, Paper-working Machinery, Motors.

Machines, Tools, and Apparatus of -Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 1 Dubois, Wm. & François Joseph, Seraing, near Liège.—Drilling machine for mines, tunnels, etc. 500
- 2 Chaudron, Joseph, Brussels.—Apparatus for boring and tubing mining shafts. 501
- 3 Libotte, Nicholas, Gilly, near Charleroi.—Cages with system of parachute. 502
- 4 Muller & Co., Clermont, near Liège.—Safety fuse for miners. 502
- 5 Souheur, Arnold, Seraing, near Liège.—Safety lamps for coal mines. 502
- 6 Van Haecht, Emile, Haeren, near Brussels.—Models of fat-rendering works, with samples of stearine and oleine. 508

Machines and Tools for Working Metal, Wood, and Stone.

- 7 De Tombay, Auguste, Marcinelle, near Charleroi.
 - a Model of a trip-hammer. 514
 - b Model of steam shears. 515
- 8 Jullien & Jennar, Bomereé, near Charleroi.—Tuyere and axle. 514
- 9 Nicaise, Ch., & Co., and Gobert, Aug., La Louvière.—Machinery for making bolts. 516

Machines and Implements of Spinning, Weaving, and Paper Making.

- 10 Bède & Co., Verviers.—Wool cleaning machine. 522
- 11 Delrez, Felix, Verviers.—Cards. 522
- 12 Dethiou, Gilles, & Co., Verviers.—Cards. 522
- 13 Horstmans Bros., Liège.—Cards. 522
- 14 Martin, Célestin, Verviers.—Looms, mechanical winder, cards. 522
- 15 Martin, Th. J., Pisseroule-Dison, near Verviers.—Cards. 522

Machines, Apparatus, and Imple- ments used in Sewing and Making Clothing and Ornamental Objects.

- 16 Turner, B. B., & Co., Brussels.—a Festooning and embroidering machines. 530
b Sewing machines for gloves, straw hats, buttonholes, etc. 531
- 17 Joint Stock Society for the Manufacture of Machines and Tools of Precision, Saint Josse-ten-Noode.—Sewing and knitting machines. 531

Machines and Apparatus for Type- setting, Printing, Stamping, Em- bossing, and for Making Books, and Paper Working.

- 18 Derckx-Schloffer, I. F., Anderlecht, near Brussels.—Wooden printing types. 542

Motors, Power Generators, etc.

- 19 Van den Kerchove, P., Ghent.—Corliss and Rider engines. 552
- 20 Dolne, L., & Co., Verviers.—Belting. 553
- 21 Horstmans Bros., Liège.—Belting. 553
- 22 Versé-Spelmans, Brichot, Ant., & Co., Brussels.—Belting. 553
- 23 Dervaux, Alfred, Brussels.—Feeding apparatus for boilers. 555

Hydraulic and Pneumatic Apparatus.

- 24 Moreau, Léon, Brussels.—Rotary pumps. 560
- 24a Banolas, R., & Co.—Fire extinguishers. 564

Railway Plant, Rolling Stock, etc.

- 25 Durieux & Co., Louvain.—Wheels for cars, carriages, etc. 573
- 26 Mabille, Valère, Mariemont.—Railway plant. 573
- 27 Legrand, Achille, Hyon, near Mons.—Sleepers and cushions for mining railways. 573
- 28 Léonard, F. L. J., Fayt, near Seneffe.—Railway brake, signals, and gates. 575

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

NETHERLANDS.

[The Machinery Exhibit of the Netherlands is installed in the Main Building, and catalogued in Part I.]

SWEDEN.

(North of North Aisle, Columns 7 to 16.)

Stone, Metal, Wood, Cloth, Paper-working Machines, Motors.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 1 Nilson, G., Eskilstuna.—Jacks. 503
- 1a Wiklund, W., Stockholm.—Centrifugal pump. 504
- 2 Alsing, J. R., Stockholm.—Model of cylinder for crushing hard materials. 505
- 6 Soderqvist, R., Goteborg.—Gas apparatus. 509

Machines and Tools for Working Metal, Wood, and Stone.

- 7 Bergström, J. W., Stockholm.—Screw-cutting machine. 510
- 8 Bollinders, J. & C. G., Machine Manufacturing Stock Co., Stockholm. 510
- a Sawing machines. 510
- b Machines for making metal cartridges; emery wheels. 515
- 9 Von Essen, H. H., Baron, Tidaholm.—Iron for turning veneer. 510
- 10 Stridsberg & Biork, Thorsträlla.—Blades for frame, circular, timber, wood, and pit saws; machine knives, trowels, ship scrapers, plane irons, etc. 510
- 11 Fagersta Manufacturing Co., Westmanlors.—Saw blades. 510
- 12 Sandvikens Iron Works (limited), Sandviken.—Piston rod for steam hammer. 514
- 14 Brehmer, E. F. A., Stockholm.—Drilling machine. 515
- 15 Köping Mechanical Works Co. (limited), Köping.—Turning machine. 515
- 15a Samuelson, S. H., Foskefors, Rada.—Machine for making hollow peat bricks. 517

Machines, Apparatus, and Implements used in Sewing and Making Clothing and Ornamental Objects.

- 16 Hedlund, Joh., Eskilstuna.—Sewing machines. 531
- 17 Husquarna Arms Manufacturing Co. (limited), Jönköping.—Sewing machines. 531

Machines for Printing, Making Books, Paper Working, etc.

- 19 Brehmer, E. F. A., Stockholm.
 - a Paging and ticket counting machines, date stamps, etc. 542
 - b Paper-cutting machine. 546

Motors, Power Generators, etc.

- 20 Atterberg, A. J., Hagforsen, Rada.—
 - a Drawings of turbines. 551
 - b Drawing of blast engine. 552
- 21 Wenström, W., Orebro.—Drawing of a turbine. 551
- 22 Kristinehamn Machine Manufacturing Co., Kristinehamn.—Marine steam engine, tank engine. 552
- 24 Köping Mechanical Works (limited), Köping.—Cast iron cylinders for a sixty-horse power propeller steam engine. 552
- 27 Motala Iron & Steel Co., Motala.—Compound marine engine. 552
- 27a Runqvist, C. R., Stockholm.—Oscillating steam engine governors. 555
- 28 Kockum Machine Manufacturing Co. (limited), Malmö.—Steam engines. 552
- 29 Sandvikens Iron Works Co. (limited), Sandviken.—Axles for propellers. 553

Motors, Railway Plant, Models of Vessels.

Hydraulic and Pneumatic Apparatus.

29^a Wiklund, W., Stockholm.—Centrifugal pump. 560

31 Atterberg, A. J., Hagforsen, Rada.—Drawing of blowing engine. 562

Railway Plant, Rolling Stock, etc.

34 Bjorkman, C. R., Kristinehamn.—Drawing of a narrow-gauge locomotive. 570

34^a Kristinehamn Machine Manufacturing Co. (limited), Kristinehamn.

^a Locomotive. 570

^b Railway car wheels. 573

37 Sandvikens Iron Works Co. (limited), Sandviken.—Railway wheels and axles. 573

38 Adelskold, C., Stockholm.—Model of an axle box for railway cars. 573

39 Arboga Foundry & Machine Manufacturing Co., Arboga.—Railway wheels, tires and axles. 573

41 Ekman, Carl, Finspang.—Railway wheels. 573

42 Fagersta Iron & Steel Works, Westanfors.—Railway axles and springs. 573

43 Köpings Machine Manufacturing Co. (limited), Koping.—Axles. 573

45 Ankarsrums Works, Ankarsrum.—Railway switches. 574

46 Ostrand, Herrman, Helsingborg.—Drawing of a railway switch. 574

Aerial, Pneumatic, and Water Transportation.

47 Lesjöfors Iron & Steel Co. (limited), Langbanshyttan.—Wire cables. 592

49 Royal Swedish Commission.—Models of fishing boats. 594

51 Kockum Machine Manufacturing Co., Malmö.—Models of steamers, and torpedo boat. 594

SPAIN.

[Machinery Hall (Section F. 1).]

Motors and Apparatus for the Generation and Transmission of Power.

1 Oases, Valero, Director of "La Primitiva," Madrid. Semi-portable steam-engine. 552

Hydraulic and Pneumatic Apparatus, Pumping, Hoisting, and Lifting.

2 Pando, Acha y Garcia, Sevilla.—Model of a wheel for drawing water from wells. 560

3 Oases, Valero, Valencia.—Wheel for drawing water from wells. 560

4 Mirapeix, Bartolomé, Barcelona.—Fire Hose. 564

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

NORWAY.

[The Machinery Exhibit of Norway is installed in the Main Building, and catalogued in Part I.]

ITALY.

(North of North Aisle, Columns 16 to 19.)

Metal, Cloth, Paper-working, Agricultural Machinery, Motors.

Machines, Tools, and Apparatus of Mining, Metallurgy, Chemistry, and the Extractive Arts.

- 1 Paresi, E. Giuseppe, Parma.—Furnace for lime. 506
- 2 Agrarian Committee of Chiavari.—Sulphur machine. 508

Machines and Implements of Spinning, Weaving, and Paper Making.

- 3 Ferrari, Bartolomeo, Parma.—Apparatus for silkworms. 520

Machines for Printing, Making Books, Paper Working, etc.

- 4 Perisi, Achille, & Son, Naples.—Pianografo-voltacarte, mechanical invention. 545

Motors, Power Generators, etc.

- 5 Zanini, Pasquale, Rome.—Steam machine. 550

Hydraulic and Pneumatic Apparatus.

- 6 Gasparini, Giacomo, Rome.—Hydraulic machine. 563

Agricultural Engineering and Administration.

- 7 Berteza, Stefano, Alessandria.—Lozzenge machine. 582

Aerial, Pneumatic, and Water Transportation.

- 8 D'Allessandro, Benedetto, Benvenuto, Rome.—Life-preserver. 594

- 9 Villa, Cav. Ignazio, Milan.—Drawings of nautical machinery and architecture. 594.

- 10 Origone, Paolo, Genoa.—Design for an iron steamer, and model in relief. 595

- 11 Zaffarini, Cav. Cesare, Ferrara.—Nautical machine. 597

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

BRAZIL.

(North of North Aisle, Columns 16 to 21.)

Machinery, Weapons, Hardware, Motors, Vessels and Appliances.

Chemical Manufactures.

- 1 Souza, Fausto de.—Metal fuses for artillery. 204
- 2 Pyrotechnical Laboratory, Rio de Janeiro. 205
 - a Fuses for artillery. 204
 - b Apparatus for guiding signal rockets. 205
- 3 Military Archives of Rio de Janeiro.—Pyrotechnical maps. 205

Weapons, etc.

- 4 Army Arsenal, Rio de Janeiro.
 - a Breech-loading rifle, and sword bayonet; revolver. 265
 - b Model of rifled brass field gun, with accessories. 266
 - c Mounted rifled gun and casemate; brass rifled gun and accessories; brass mortars; shot and shell, canister and grape for heavy ordnance; apparatus for guiding rockets, used as a projectile. 267
 - d Spears. 268
- 5 Arsenal at Bahia.—Drum used by the Brazilian army. 265
- 6 Arsenal in the Province of Rio Grande do Sul.—Weapons and articles used by the Brazilian army. 265
- 7 Navy Arsenal, Rio de Janeiro.
 - a Leather buckets for artillery service. 266
 - b Leather cartridge boxes for heavy ordnance. 267

Hardware, Edge Tools, Cutlery, and Metallic Products.

- 8 Silvino, Tripo di.—Hand tools. 280
- 9 Province of Minas Geraes.—Hand tools and instruments. 280
- 10 Arsenal of the Province of Bahia.
 - a Hand tools. 280
 - b Locks for naval and ships' stores. 284
- 11 Ipanema Iron Works.
 - a Hand tools. 280
 - b Imperial crown and cross of cast iron; samples of cast iron. 283
- 12 Army Arsenal, Rio de Janeiro.—Cast iron ventilator, and samples of cast iron. 283
- 13 Santos, Cauto dos.—Imperial crown of cast iron; samples of cast iron. 283
- 14 Bieunemback & Bro.—Chair of cast iron; samples of iron grates. 283
- 15 Slichal, Fabiano.—Horse shoes of different shapes. 284

Engineering, Architecture, Maps, etc.

- 16 Navy Yard at Rio de Janeiro.—Models of dry docks cut into the rock. 330

Machines and Tools for Working Metal, Wood, and Stone.

- 17 National Mint, Rio de Janeiro.—Stamping machine, edging machine, hand tools and instruments. 510

Machines and Implements of Spinning, Weaving, Felting, and Paper Making.

- 18 Rezende, Luiz de, Rio de Janeiro.—Machine for reeling and skeining silk, apparatus for counting the twist, samples of silk and cocoons. 520

Motors, Power Generators, etc.

- 19 Navy Arsenal, Rio de Janeiro.
 - a Models of engines for small monitors and mortar ships; steam engine to be used as motor at the pyrotechnical laboratory at Rio de Janeiro. 552
 - b Pulleys, pulley stand shafts, and flying wheels. 553
- 20 Army Arsenal at Rio de Janeiro.
 - a Iron drums and chairs for transmitting motion. 553
 - b Iron screw propeller and its cog wheel. 554

Hydraulic and Pneumatic Apparatus.

- 21 Costa, T. C. da.
 - a Pumps. 561
 - b Hydraulic ram. 563
 - c Nozzle fire plug. 564
- 22 Neves, F. Candido das, Rio de Janeiro.—Stop cocks. 566
- 23 Russell, B. G., Rio de Janeiro.—Lead pipes and hydraulic syphons, copper valve box. 566

Machines used in Preparing Agricultural Products.

- 24 Birrenback & Bros., Iron Works, Province of S. Paulo.—Hand mill. 585

Aerial, Pneumatic, and Water Transportation.

- 25 Navy Arsenal, Rio de Janeiro.—Models of iron clads, casemate and monitor ships, men of war and steam launches; models of corvettes and launches, designed by Trajano de Carvalho. 595

Arboriculture and Forest Products.

- 26 Navy Arsenal, Rio de Janeiro.—Samples of wood used for ship building. 600

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

ARGENTINE REPUBLIC.

(North of North Aisle, Columns 21 to 23.)

Cloth and Paper-working Machines, Vessels.

Machines and Implements of Spinning, Weaving, and Paper Making.

- 1 Provincial Commission, Province of Santiago del Estero.—Weaving loom. 522

Machines for Printing, Making Books, Paper Working, etc.

- 2 Estrada, Angel, Prov. of Buenos Ayres.—Samples of printing, types, electrotypes, corners, etc. 542
3 Cañarte, Bernardo R., Province of Buenos Ayres.—Album of typographic works. 542

Railway Plant, Rolling Stock, etc.

- 4 Gardella, Luis, Province of Buenos

Ayres.—Plan of a rotary machine with boiler. 570

Aerial, Pneumatic, and Water Transportation.

- 5 Provincial Commission, Province of Corrientes.—Oars. 594
6 Office of the Harbor Master, Province of Buenos Ayres.—Model of mixed frigate, with wooden hull and auxiliary machine; models of steam lighter, pleasure steam yacht, and whaler. 595
7 Roibon, Federico, Province of Corrientes.—Model of rafts for crossing the "Paso de la Patria" during the war with Paraguay, in 1866. 596

RUSSIA.

(North of North Aisle, Columns 22 to 25.)

Metal, Stone, Cloth, Paper-working Machines.

Machines, Tools, etc., of Mining, Chemistry, etc.

- 1 Yevleff, Andrew, Moscow.—Gold-beater's skins and sample of leaf gold. 505
2 Administration of the Mining District in Western Poland.—Plan of gas smelting furnace. 506
3 Admiralty Electroplate Establishment, Cronstadt.—Specimens of metallic layers by electrotyping. 508

Machines and Tools for Working Metal, Wood, and Stone.

- 4 Lessner, Gustavus, St. Petersburg.—Planing, drilling, and turning machine. 515
5 Popoff, Basil, St. Petersburg.—Workbench. 515
6 Practical Technological Institute, St. Petersburg.—Lathes, planing, shaping, and drilling machines. 515

- 7 Smithery of the Port of St. Petersburg.—Apparatus for stamping bolts with threads; specimen of bolts, for armor plates and stamped row locks. 515

Machines and Implements of Spinning, Weaving, Paper Making, etc.

- 8 Tilzoff, John, Moscow.—Weaving slays. 520

Machines, etc., used in Sewing, Making Clothing, etc.

- 9 Rauer, Augustus, Warsaw.—Album of reduced patterns for tailors. 531

Machines for Printing, Making Books, Paper Working, etc.

- 10 Alisoff, Michael, St. Petersburg.—Type-writing machine, and new photolithographic process of music printing. 542

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

Machinery, Motors, Railway Plant, Vessels.

- 11 Goldberg, Isidor, St. Petersburg.—
a Printing types and electrotypes, stereo-
 types. 542
b Pasteboard cutter. 546
- 12 Lorchetes, Alfred, Liban.—Stegan-
 ographic apparatus. 542
- 13 Wolf, Morris, St. Petersburg.—
 Sample book of typographical types. 542

Motors, Power Generators, etc.

- 15 Lesser, Gustavus, St. Petersburg.—
 Section of a steam cylinder with steam
 distributing apparatus. 550
- 16 Steam Engine Works, Port of Cron-
 stadt.—Steam engine and boiler for a
 barge. 550
- 17 Lilpop, Rau, & Lovenstein, War-
 saw.—Portable steam engine, ten horse
 power. 552
- 18 Pootilof Iron Works Co., St. Peters-
 burg.—Steam engine. 552
- 18*a* Imperial Technical School, Moscow.
 —Model of a steam engine with parallel
 motion and regulator. 552
- 19 Admiralty Tyova Works, near St.
 Petersburg.—Chains and moving tackle. 553
- 20 Herezinesk, W., Warsaw.—Cordage
 transmission straps. 553
- 21 Hofmark, Bruno, St. Petersburg.—
 Wire transmission belt. 553
- 22 Mliek, William, Warsaw.—Cordage
 transmission straps. 553
- 23 Tember, K., & Schovede, L., War-
 saw.—Leather transmission belts. 553
- 24 Cohnfeld, S., St. Petersburg.—Auto-
 matic feeding apparatus. 555

Hydraulic and Pneumatic Apparatus.

- 26 Admiralty Tyova Works, near St.
 Petersburg.
a Dawnton's ship pump and fire pump. 560
b Diving apparatus. 567
- 27 Friedland, Michael, St. Petersburg.
 —Pumps, rotary system. 560
- 28 Liarsky, Nicolaas, Smolensk.—Load
 roller. 563
- 29 Tretzer, Adolphus, Warsaw.—Fire
 engine. 564
- 30 Lange & Co., Moscow.—Fire engine
 hose. 564
- 31 Mick, William, Warsaw.—Fire en-
 gine hose. 564
- 32 Hesse, Charles, Riga.—Metal cap-
 sules. 565

Railway Plant, Rolling Stock, etc.

- 34 Lilpop, Rau, & Loevenstein, War-
 saw.
a Bolts, screws, and other railway and car
 fittings. 571
b Buffer spring and coupling appliance;
 wheel and spring for railway carriages. 572
- 35 Shiloff, L. P., Moscow.
a Patent railway car lock. 571
b Railway signals. 575
- 37 Pootilof Iron Works Co., St. Peters-
 burg.—Railway ties, axles, and wheels. 573
- 38 Abokoff Steel Foundry, near St.
 Petersburg.—Railway wheels, ties, and
 axles. 573
- 39 Russian Rail Manufacturing Co.,
 Government of Riazan, District of Pronsk.
 —Railway ties, chairs, nails, bolts and
 nuts. 574

Machinery used in Preparing Agri-
cultural Products.

- 41 Yosefow Sugar Manufacturing Co.,
 Government of Warsaw.—Metallic
 sugar loaf form. 581

Aerial, Pneumatic, and Water Trans-
portation.

- 42 St. Petersburg River Yacht Club.—
 Rowing boats. 594
- 43 Alexandroosky, —, St. Petersburg.
 —Air bags for raising sunken vessels. 594
- 44 Makaroff, T. R. N., St. Petersburg.
 —Patent safety mats for instantly stop-
 ping leakage in ship bottoms. 594
- 45 Modeling Workshop in the Naval
 Museum, St. Petersburg.—Models of
 ships, yachts, and circular iron clads. 595
- 46 Russian Steamboat & Trade Co.,
 Odessa.—Model of steam schooner for the
 coal trade. 595
- 47 Naval Museum, St. Petersburg.
a Models of a floating dock and graving
 dock in Cronstadt. 596
b Model of steering apparatus. 597
- 48 Engineers' Shop of the Port of St.
 Petersburg.—Apparatus for lowering
 boats and boat furniture. 597
- 49 Steam Engine Works, Port of Cron-
 stadt.—Admiral's cabooses. 597
- 51 Mast Maker's Shop, Port of Cron-
 stadt.—Models of masts, etc. 597

For classes of exhibits, indicated by numbers at end of entries, see Classification, pp. 13-15.

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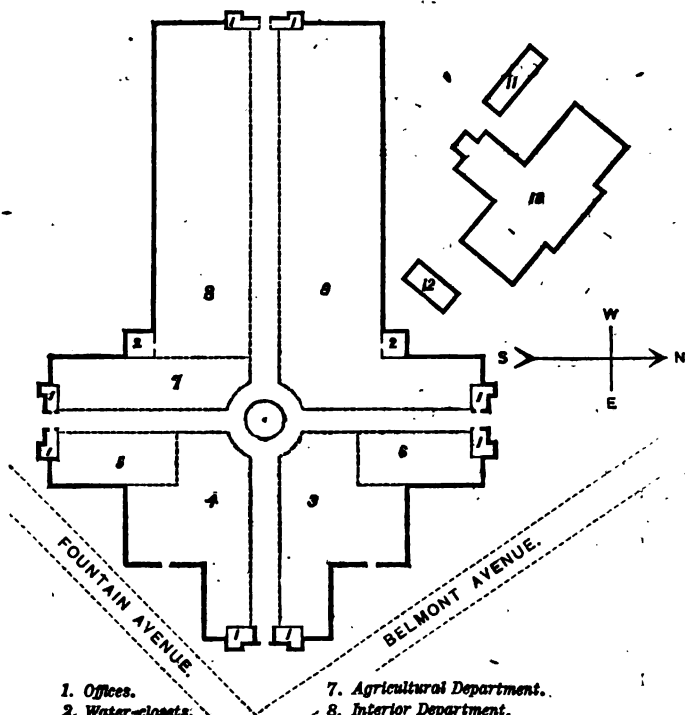
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- | | |
|-------------------------|---|
| 1. Offices. | 7. Agricultural Department. |
| 2. Water-closets. | 8. Interior Department. |
| 3. War Department. | 9. Smithsonian Institution and Food Flakes. |
| 4. Navy Department. | 10. United States Hospital. |
| 5. Post Office. | 11. Tent. |
| 6. Treasury Department. | 12. Laboratory. |

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Width, 360 ft.

Height, 50 ft.

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WM. A. DE CAINDRY, Secretary of the Board.

UNITED STATES GOVERNMENT BUILDINGS.

MAIN BUILDING, No. 51.

Architect, JAMES H. WINDRIM.—Size, Floor Area, 102,840 square feet.

This structure is situated at the intersection of Belmont and Fountain Avenues, is built in the form of a Latin cross, and is of framed white pine, unplanned, with two tiers of windows. It contains for exhibition contributions from the different Executive Departments of the United States Government.

ORDNANCE LABORATORY BUILDING, No. 54.

Architect, Col. T. T. S. LAIDLEY, Ordnance Corps, U. S. A.—Size, 53 feet by 23 feet.

This building is located north of Main Building, and is built of wrought iron, rivetted, covered with a light casing of wood. It is designed with the view of preventing the great loss of life that usually results from the demolition of a building of ordinary construction, by the explosion of even a small amount of powder. In the event of an explosion in this building, the roof and sides fall at once, and the iron frame is left standing, in order to shield the inmates from being crushed beneath the ruins. The building, as well as its contents, is on exhibition.

UNITED STATES ARMY POST HOSPITAL, No. 52.

Size, 35 feet by 39 feet, and Addition of 40 feet by 14 feet.

This Hospital is situated north of the Main Building, is two stories in height, and is intended to hold twenty-four beds. It is built of wood, and contains medical appliances of all kinds, including medicines, instruments, hospital stores, clothing, books, and furniture, models of hospitals, cars, boats, ambulances, etc., microscopical and other specimens. The construction of the building and its contents are on exhibition.

TRANSIT OF VENUS BUILDINGS.

This structure is situated southwest of Government Building, consisting of,—

1. Transit House.—Dimensions, 10 feet by 8 feet.
2. Photographic House.—Dimensions, 12 feet by 10 feet.
3. Equatorial House.—Dimensions, 11 feet in diameter.

All the instruments employed in observing and recording the phenomena of the late transit of Venus are so placed on exhibition that the various processes will be exemplified by practical workings.

WAR DEPARTMENT.**Signal Section.****SIGNAL SECTION.**

The instruments exhibited in the Signal Service Section of the United States Army are all of American manufacture, and only such as have been devised for the signal service of the army by officers or enlisted men of the corps.

METEOROLOGICAL INSTRUMENTS.

The display of self-recording instruments consists of barographs, anemographs, thermographs, rain-gauges, and evaporator. Some of these are worked by electrical batteries, others by mechanical means. Those recording the velocity and direction of the wind, the amount of rainfall and changes of temperature, are connected with their respective wind-cups, wind-vanes, rain-receivers, and thermometers, exposed upon an artificial glass roof, beneath which the recording apparatus is placed, each electrical instrument having its own battery. Artificial currents of air and water are used to obtain uninterrupted working.

UNITED STATES SIGNAL STATION.

This department consists of a model United States signal service station, similar to those established in different sections of the United States. Here are exhibited the meteorological instruments used on station; the manner

of taking, recording, and transmitting to the central office at Washington the observations upon which the weather reports, storm warnings, etc., are based; the method of publishing and distributing the predictions forwarded from the office of the Chief Signal Officer of the army, as well as the various means adopted to furnish at the earliest practicable moment all weather information which would be of benefit to commerce and agriculture. Specimens of the publications, charts, and maps of the office of the Chief Signal Officer are also exhibited.

PRINTING DEPARTMENT.

Here are exhibited in detail the printing of "weather maps" and "farmers' bulletins."

FIELD WORK.

This portion of the exhibition comprises a complete United States field-telegraph train, with capacity to erect 50 miles or more of portable telegraph line; portable signal tower 75 feet high, with its wagon; semaphore, signal flags, torches, rockets, bombs, and mortars, colored lights, heliographs (for communicating by means of sun flashing, and international flags, and other apparatus used in communicating with troops in the field or with vessels.

Quartermaster, Medical, Engineer Sections.

MODEL DEPARTMENT.

The model department comprises models of the different instruments used in field signaling, models of station meteorological instruments and portable instrument shelter, and a new electrical instrument for transmitting by telegraph the isobarometric and isothermal lines of the Signal Service weather maps.

QUARTERMASTER SECTION.

Uniforms.—Revolutionary uniforms, and those of succeeding years; present uniforms of the army.

Camp and Garrison Equipage.—Tents, flags, cooking utensils and tools; field music—drums, bugles, etc.; bunks, blankets, and bedsacks.

Means of Transportation.—Wagon and harness; ambulance and harness; aparojo; pack saddle; historic wagon; portable and traveling forges.

Machines.—For cutting out clothing; for brass screwing shoes; for testing fabrics.

Farriers' and Saddlers' Tools.

Standard Horse Shoes.

Veterinary Chest.

Kiernan's System of Horse Shoeing.

MEDICAL SECTION.

This display represents the character of the work of the medical staff of the United States army in peace and war. Four classes of objects are exhibited by the objects themselves, by models, or by photographs.

1. Hospitals for Sick and Wounded Soldiers.

a Post hospital of 24 beds of full size.

b Four full-sized hospital tents, with furniture representing the tent ward which served as the unit of the "tent field hospital" used during the civil war of 1861-65.

c Models of the barrack "General Hospitals" used during the war of 1861-65, viz.: a model of the form of barrack ward for 60 beds; on the scale of half an inch to the foot; and four ground-plan models showing combinations of such wards in general hospitals.

2. Medical and Hospital Supplies.

Samples of articles on the medical supply table of the army: medicines; hospital stores; surgical instruments and dressings; hospital furniture, bedding, clothing, and appliances; books, blank forms for reports, and stationery; medical panniers and medicine wagons, and samples of the artificial arms, legs, trusses, and other apparatus issued by the medical department to disabled soldiers.

3. Transportation of Sick and Wounded.

Stretchers, litters, and ambulances, full size and models; models of hospital railroad cars, hospital steamboat, and hospital ocean steamship, illustrating mode of transporting sick and wounded during the late war.

4. Treatment of Diseases and Injuries of Soldiers.

Army medical museum, represented by medical, surgical, anatomical, and microscopical specimens, photographs of specimens, and catalogue of museum; catalogue of Surgeon-General's office; photographed title pages of rare books on military medicine and surgery, etc.; medical and surgical publications of Surgeon-General's office.

The Post Hospital, for twenty-four beds, constructed from plans approved by the War

Department, contains the greater part of the display of the Medical Department, as follows:

Room 1, 45x25, a ward with twelve beds, furniture, bedding, clothing, etc.

Room 2 (the other ward, same size), models of hospitals, ambulances, hospital cars, boats, and ships, specimens from museum, etc.

Room 3, the dispensary, samples of medical supplies.

Room 4, the office, samples of surgical instruments, medical and surgical books, blanks, etc.

Room 5, dining room, table ware, mess furniture.

Room 6, kitchen, cooking apparatus.

Room 7, office of officer in charge of the display.

Rooms on second floor, stretchers, litters, medicine chests, and panniers; artificial legs and arms, trusses for rupture, and other apparatus.

Tent ward, full-sized hospital tents, pitched in the rear of the post hospital.

Ambulances, medicine wagons, and carts, full-sized, parked near the tent ward.

ENGINEER SECTION.

Maps and Drawings.

Map of the United States, showing work done by corps of engineers, 1776-1876.

Drawing of Rock Island bridge.

Map of canal and locks, Des Moines rapids.

Map of Mississippi river, from Le Claire, Iowa, to Rock Island, Illinois.

Drawings of improvements of Mississippi river between mouths of the Illinois and Ohio.

Plans of improvements on Hudson river, near Albany.

Drawing of iron landing pier, Delaware breakwater harbor.

Drawing of foundation of Fort Delaware.

Drawing of dynamometer for determining force required to screw down iron piles of Lewes pier.

Drawing of Delaware breakwater, with details of breakwater and ice barrier.

Map of shore of Delaware harbor, including Cape Henlopen.

Chart of Schuylkill river, from mouth to Chestnut Street bridge, showing improvements made by United States in its navigation from 1870 to 1875.

Drawing of dredge-boat "Henry Burden."

Drawing of mortar mill and concrete mixer.

Map of flood plain of Minnesota and Mississippi rivers, showing connection with basin of Red river and Lake Winnepeg.

Drawings of snag boat.

Chart of Galveston entrance.

Detailed drawings and photographs, illustrating experimental works at Galveston entrance.

Chart of Indianola harbor.

Detail drawings of end dock.

Charts of Lake Survey.

Lighthouse drawings, Eleventh district.

Drawing of river and harbor works.

Plans of cribs and pile pier at Chicago.

Maps and hydrographs of Ohio, Monongahela, and Great Kanawha rivers.

Drawings of crib work for piers on Lake Ontario.

Special map of region west of Mississippi river.

Special triangulation map of region west of Mississippi river.

Detailed topographical sheets of above region.

Specimen copies of photolithographic atlas,

Engineer, Ordnance Sections.

crayon topographical atlas, and geological atlas.

Models of Harbor Improvements.

Work at Hallet's Point, N. Y. (Hellgate.)
Northern extremity of Cape Cod.

Section of iron landing pier of Delaware breakwater harbor.

Iron ice barrier proposed for Horse Shoe of Delaware river.

Breakwater at Dunkirk, N. Y.

Crib and lighthouse on Spectacle reef, Lake Huron.

Angle crib and lighthouse at Harbor of Refuge, Lake Huron.

Model showing shore lines and breakwater at Harbor of Refuge, Lake Huron.

Crib and pier at Chicago, Illinois.

Crib work for piers on Lake Ontario.

"Mattress" or "apron" used in improvements of harbor at mouth of Cape Fear river, N. C.

Models of Machinery and Appliances.

Steam drilling scow.

Capstan-head and machinery for screwing down iron piles at Delaware breakwater landing pier.

Derrick for landing shafts.

Eccentric clamp or "nipper" for sustaining piles.

Snag boat, showing hull.

Dredge-boat "McAlester."

Large grapple.

Photographs.

Views of Hallet's Point, N. Y.; snag boat; Red river; cribs and piers at Chicago, Ill.; country west of Mississippi river (Wheeler expedition).

Materials, Specimens, and Samples.

Specimens of borings at site of landing pier of Delaware breakwater; of iron used in construction of landing pier; of timber piles taken from between tides at Reedy Island; ice barrier; of building stone, concrete, and woods, collected from various parts of the United States; of fossil trees; of large cypress stump, taken from mouth of Cape Fear river, N. C.

Miscellaneous.

United States bridge equipage, pontoon wagons, loaded; tool wagon; forge; model of bridge train, wagons, and loads; reserve and advance guard bridges; siege and mining tools; field photographic outfit; reconnaissance instruments; bridge model; models of torpedoes; models of apparatus for measuring subaqueous explosions, in glass tank; torpedoes, full size, models, 1874-75; ground mine; cable stop; junction boxes; torpedo cables, multiple and single; operating box; electrical apparatus used with torpedoes; iron plate from torpedo target, showing effects of thirty pounds of dynamite exploded under water at thirty feet distance; models of King, De Russy, and Hunt self-depressing gun carriages; models of mortar carriage and muzzle-pivoting gun carriage; surveying, astronomical, and barometrical instruments for field work; publications of the engineer bureau.

ORDNANCE SECTION.**Sea Coast Guns.**

20 in. Rodman gun, on carriage and chassis, with hydraulic buffer, on platform; implements.

12 in. Thompson b. l. rifle, experimental, under Laidley's gun lift.

9 in. Sutcliffe b. l. rifle, experimental, on carriage and chassis, with Sinclair's friction-brake, mounted on platform; implements.

10 in. Woodbridge gun, experimental; in slings, under Laidley sling cart.

8 in. m. l. converted rifle, experimental, on 10 in. casemate carriage and chassis, with pneumatic buffers, mounted on platform in model of casemate; implements.

Mann's 8 in. b. l. rifle, wrought iron, experimental, mounted on top carriage and chassis.

8 in. siege howitzer, mounted on wooden siege carriage.

Siege Guns.

4.5 in. siege rifle gun, mounted on Benton's experimental iron siege carriage, with limber; implements.

Field Guns.

Light 12 pdr. gun, 4.62 in. wooden carriage, with limber; implements.

Sutcliffe 3.9 in. b. l. rifle, experimental.

Hotchkiss 3.9 in. b. l. rifle, experimental.

Moffat 3.15 in. b. l. rifle, experimental.

Mann's 3 in. b. l. rifle, experimental.

3 in. wrought iron, m. l. rifle, mounted on Benton's experimental iron 12 pdr. field carriage, with limber and caisson; implements; model horse harnessed to limber, with mounted driver.

10 pdr. Parrot rifle, mounted on Watervliet arsenal experimental iron field carriage, with limber.

3 in. Whitworth field piece, on carriage.

2.5 in. Woodbridge gun, experimental; fired 1327 times.

Hotchkiss field cannon, experimental.

Rebel b. l. pieces, field and boat, experimental skids.

Lyman's multicharge rifle, cal. 6 in., experimental skids.

Bomford and Wade perforated gun, experimental; used to determine experimentally exterior lines of heavy cannon, by means of pressure at different points of bore.

Mountain howitzer, mounted on carriage.

Mountain howitzer battery, on stands.

Volley and Repeating Guns.

Gatling gun, short barrel, cal. 45, on cavalry carriage; model horse in harness.

Hotchkiss revolving cannon, on carriage, experimental.

Union repeating (coffee-mill) gun, on carriage, experimental.

Regua battery, on carriage, experimental.

Guthrie & Lee gun, on carriage, experimental.

Vandenburgh volley gun, on carriage, experimental.

Revolutionary Guns.

6 pdr. French guns, bronze, presented by Lafayette; forming enclosure around models of modern gun plant.

12 pdr. siege gun, bronze, mounted on wooden carriage, with limber.

8 in. howitzer, bronze, mercer.

24 pdr. howitzers, Byer's; cast in Philadelphia.

Anthony Wayne howitzers, intended to be used on horseback; cast in Germantown, Philadelphia, by D. King.

Mortars.

13 in. sea-coast mortars, on bed, with centres, pintles, chassis mounted, on platform; implements.

24 pdr. Coehorn mortars, on beds.

Carriages.
New cavalry forge cart.

Projectiles.

Shot, shells, grape, canister, etc., for various weapons and calibres; smooth-bored and rifled; fired and unfired; hand-grenades,

War and Navy Departments, Ordnance and Appliances.

bombs, rockets, torpedoes, etc. Experimental projectiles from West Point.

Small Arms.

Historical collection of muzzle-loaders, wall-pieces, muskets, musketoons, rifles, pistols, flintlocks, percussion, breech-loaders, fixed and movable chambers, revolvers, tip-up barrels, needle guns, cylindered, magazine, chasapot, repeating, coffee-mill, drop-lever, slap-over guns, American and foreign.

Bayonets, blades, knives, swords and scabbards, lances, pikes, halberds, cleaning appliances, etc.

Accoutrement.

Sets of infantry, cavalry, and artillery equipments; cartridge boxes, canteens, metal work on scabbards, etc.; powder horns and flasks, cartridges, and cases of various materials and calibres; primers, locks, fuses; cartridge-making machinery.

Models.

Minute man.

Rifle private, full dress, Hall breech-loading rifle, 1818.

Private, mounted rifles, Mexican War, 1845.

Infantry private, 1858-1866, regulation equipment.

Cavalry private, 1865, Spencer, Mann's equipment.

Infantry man, full dress, 1876.

Infantry man, marching outfit, 1876.

Cavalry man, present, full dress, 1876.

Light-artillery man, full dress, 1876.

Horse, carved in wood, for cavalry equipment.

Horse, carton pierre, for artillery harness.

Horse, stuffed, for Gatling cart.

Rock Island Arsenal, Illinois, in photograph.

Hitchcock gun-plant, with gun in sections, with set test specimen Hitchcock gun material, showing tensile and torsional strength; sample forging-disk; Dank's iron bloom; Graft, Bennett, & Co., Hitchcock's gun materials; long turnings H.G. material; and thin turnings H.G. material.

Rodman gun-plant, with specimen, showing tensile compression and torsional strength of the American cast-iron used in Rodman gun.

Woodbridge gun, with set specimens, showing tensile strength of Woodbridge gun construction; reel-wire for Woodbridge gun; and half-ring, bronzed, Woodbridge gun.

Cast of bore in gutta-percha of 8 in. m. l. converted rifles, with centres for same on trestles.

Glass-case specimens, containing small models, relics, etc.

Tree, cut in two by musketry at the battle of the Wilderness, Va.

Boards of component parts of small arms, and progressive work on scabbards.

Rodman guns, mounted in barbette and in casemate.

Mortar, mounted on bed with centre pin, chassis.

Table with models, field and siege carriages.

Lead bullets, joined together by collision in mid-air at the battle of Petersburg, Va.

Machines.

Casemate gin; Baxter engines.

Cartridge Machinery.

Portable gas furnace for annealing cartridge shells; double-action press; drawing presses; case and cup anvil trimmers; header; primer; cup venting, and impression machines; bullet, ball-trimming, and greasing, tapering, and loading machines; cup anvil press; rotary fan; packing tables and work boxes.

Gun-making Machinery.

Drop hammer; forge; trimming jumper; barrel-boring lathe, for nut boring and quick boring; barrel-turning lathe; straightening stand; polishing stand; vises, with machine for bending swivels; trimming press; drill press; rifling, brush, and profiling machines; milling and screw machines; clamp grinding machine; machine for bending swivels; grindstone; engine lathe; emery mill grinder; second drilling receiver; first turning stock; lock-bedding with post and spare pulley; air pump and reservoir; bench for assembling guns.

Instruments.

Laidley laboratory, showing principles of construction, and illustrating experiments in ballistics; models pressure; pendulum eprouvette; camera lucida for representation with model of Frankford target; Shultz chronoscope, with Russel's interrupter; vignotti machine; Le Boulangé chronograph; Benson thread, and electro-ballistic machines; target for electro-ballistic machines; recoil dynamometer; mercurial densimeter; scales for mercurial densimeter; stereometer; collection of inspecting instruments for cannon and projectiles for 3 in. rifle and 15 in. gun; iron tube for firing through with safety; firing stand.

Miscellaneous.

Boards showing rifle practice.

Publications from ordnance office and artillery school.

Medal, army target practice; stadia, silver (1 cavalry, 1 infantry); telemeters (1 battery, 1 infantry, and 1 field).

Corrugated iron powder barrels; copper powder barrel.

NAVY DEPARTMENT.

ORDNANCE BRANCH.

Rifled and Smooth Bore Guns.—15 in. guns on Ericsson's and Edes's steam carriages.

[These two guns are mounted on a circular platform and inclosed in a wooden turret, representing in size and form a monitor's iron turret.]

Pieces of heavy ordnance, muzzle and breech loading, of antiquated styles and manufacture.

Guns from 11 in. to 3 in. calibre, and 200 pdrs. to 12 pdrs., variously mounted.

Torpedoes.—Automatic, stationary, and movable; electric batteries, wires, fuses, etc.;

illustrating progress made by the torpedo school.

Small Arms.—Muskets, rifle and smooth bore, breech- and muzzle-loading; pistols, swords, cutlasses, bowie knives, battle axes, tomahawks, boarding helmets, etc.

Ordnance publications.

Samples of gunpowder.

Inspecting instruments for heavy guns; instruments for gauging and inspecting shot and shell.

Fuse presses; machines for making percussion caps; metallic cartridges; solid head metallic musket and pistol cartridge now used in the navy, showing the different stages of

Navigation, Observatory, Docks, Engineering, Etc.

manufacture; other musket cartridges and cartridge inventions in possession of the navy.

Rifle projectiles for heavy guns; inventions of Dahlgren, Holroyd, Dana, Parrot, Hotchkiss, James, Brooks, and other inventors.

Sub-calibre and elongated projectiles for smooth bore guns; solid shot, shell, incendiary shell, grape, canister, shrapnel, as used at present, and as previously used or proposed.

Projectiles which have been fired at iron targets; models of projectiles; model gun-carriages; war rockets, hand grenades; leather work of navy ordnance; sponges, rammers, and scrapers of different styles and inventions; fuses, cannon primers, and caps, cannon locks, night signals, impressions from guns, vent impressions; gun sights; breech, reinforce, and trunnion.

Figures of sailors, showing the dress and arms at different periods.

Miscellaneous articles and naval relics.

NAVIGATION BRANCH.

Navy bunting and navy flags, illustrating the present state of the bunting manufacture in the United States, as shown in the bunting made for the navy and known as "navy bunting," and also the mode of making flags by dyeing in pattern.

Bunting testing machine.

Navy sounding machines and auxiliary apparatus, showing the improvements in Sir William Thomson's sounding machine, and the various devices for detaching sinkers, and bringing up specimens of bottom, water, etc.

Navy signal apparatus, showing the colored lights (Coston's), with specimens.

Navy compasses and compass-testing instruments, showing specimens of the navy compass, azimuth circle, tell-tale, boat, and monitor compasses.

Portable compass-testing instrument, with specimens to illustrate development of the liquid compass.

Specimens of the old dry or air compass of American makers, illustrating the progress of improvement.

Adjustable binnacle.

NAVAL OBSERVATORY.

Publications.

Photographs of astronomical and other objects.

Chronometers.

Objects illustrative of American Arctic explorations.

Buildings and instruments used in the observations of the transit of Venus, December 8, 9, 1874.

HYDROGRAPHIC OFFICE.

Nautical charts, books, etc., published by the Hydrographic Office.

NAUTICAL ALMANAC OFFICE.

Publications of the office.

YARDS AND DOCKS BRANCH.

Plans of navy yards at Portsmouth, N. H.; Boston, Mass.; New York, N. Y.; Washington, D. C.; Norfolk, Va.; Pensacola, Fla., and Mare Island, Cal.

Plans of machinery at Boston navy yard; plans of dry docks at Boston, Mass., and Norfolk, Va.

Photographs of buildings, etc., at Portsmouth, N. H.; New York, N. Y.; Norfolk,

Va.; League Island, Pa.; Boston, Mass., and Mare Island, Cal.

Models of dry docks at Boston, Mass.; New York, N. Y.; Norfolk, Va., and Mare Island, Cal.

Pyramid of blocks of wood taken from naval vessels.

STEAM ENGINEERING BRANCH.

Machinery of the "Nipsic."

The machinery of the various sizes of steam launches.

The engines of the "Epervier."

Part of the original machinery of the torpedo boat "Spuytzen Duyvel," a steam launch, with the first torpedo machinery used in the United States Navy.

Detail drawings of compound engines.

Photographs of machine shops, foundries, etc., showing improved tools used in the manufacture and construction of steam machinery.

Two compound boilers.

Baird's distiller, illustrating the method of making fresh water on board ship at sea.

EQUIPMENT AND RECRUITING BRANCH.

Young's ship's galley, with utensils for cooking for 500 men.

Hemp, manila, and wire rope; cable, blocks, chain cables, etc.

CONSTRUCTION AND REPAIR BRANCH.

Models of the "Constitution;" "Mississippi;" "Jamestown;" "St. Mary's;" "Portsmouth;" "Constellation;" "Niagara;" "Merrimack;" "New Ironsides;" "Hartford;" "Monitor;" "Kearsage;" "Vandalia;" "Constitution;" "President;" "Ohio;" "Enterprise;" "Washington," and "Fulton."

Full-rigged model.

MEDICAL AND SURGICAL BRANCH.

Medicines and Hospital Stores used in the Navy.

Surgical instruments and appliances usually supplied in the service; additional case of surgical instruments occasionally supplied in lieu of the standard operation case.

Cots and stretchers for transportation of wounded in action.

Model of a sick bay; the part of the ship usually allotted for hospital accommodation.

Model of hospital ship.

Fan for ventilating the hold of a ship in hot climates.

Starting funnel arrangement for aerating distilled water.

Set of record and account books for a naval hospital.

Fracture bedstead, for elevating the patient and changing position.

Bed with woven wire mattress.

Photographs and plans of naval hospitals.

PAY, PROVISION, AND CLOTHING BRANCH.

Articles and materials of clothing issued in the navy.

Package, showing the manner of packing clothing for sea.

Navy rations in glass jars, and packages of the same as prepared for sea.

"Small stores," articles for mess use: pans,

Patents, Pensions, Lands, Indians, Education, Census.

spoons, knives, etc., tobacco, soap, needles, thread, and other small articles.

Packages of tobacco and soap as packed for sea use.

Paymasters' books and blanks for a ship with complement of 200 men; paymasters' stationery; stewards' stores, scales, and tools used in issuing provisions.

Iron safe; locks used on paymasters' storerooms, three in number.

Specimen of candles.

TREASURY DEPARTMENT.

(Owing to want of sufficient appropriation by Congress for defraying the expense of the participation in the Exhibition by the Treasury Department, no definite arrangements have yet been made for contributions from it.—March 31, 1876.)

INTERIOR DEPARTMENT.

PATENT OFFICE.

Publications.—Annual reports; official gazette; indexes to patents, general and yearly; volumes of patents, monthly and weekly; decisions of Commissioner of Patents; mechanical dictionary; official classification.

Drawings of Models.—Selected series (60,000), intended to serve in the illustration of the Patent Office work, from the classes given below.

Models.—Selected series (5000), intended to serve in the illustration of the Patent Office work, from the following classes: agriculture; harvesters; mills and presses; architecture; civil engineering; railways; navigation; metallurgy; metal working; wood working; steam; hydraulics; pneumatics; mechanical movements; hoisting; horse powers; journals and bearings; vehicles; fire arms; textile; printing and stationery; stone; clay; glass; leather; light; heat; electricity; household; chemistry; gas; ice, and fine arts.

Miscellaneous Collections of Interest.—The original Declaration of Independence; Gen. Washington's commission from the Continental Congress; personal effects of Gen. Washington, such as furniture, porcelain, clothing, cane, sword, traveling escritoire, surveying compass, camp equipage, including tent, mess-kit, money-chest, etc.

Weapons of historical interest, such as bayonets from General Braddock's line of march; muskets presented by the Emperor of Morocco to Mr. Jefferson; war saddle of Baron De Kalb; sabres of honor presented to United States officers by sovereigns and beys; model of invention by President Lincoln.

PENSION OFFICE.

Publications.—Annual reports; graphic illustrations; wall maps; wall charts; portfolios of diagrams, etc.; collections of historical interest; selections from the archives of the office relative to the Revolutionary war.

GENERAL LAND OFFICE.

Publications.—Annual reports; digests, and other documents.

Graphic Illustrations.—Maps, charts, and atlas of surveys; miscellaneous collections; instruments and processes employed in the land survey.

INDIAN OFFICE.

Publications.—Reports and other publications.

Illustrations.—Portraits, photographs, maps of reservations, etc.

Models.—Wigwams, communal houses, canoes, etc.

Miscellaneous Collection of Interest.—Costumes, male and female, adult and others; weapons of war and the chase; tents, wigwams, canoes, etc.; domestic utensils; specimens of food; toys, games, and festivals, arts and manufactures of the tribes; ethnological collections, etc.

EDUCATION OFFICE.

Publications by the Office.—Annual and special reports, and circulars of information.

Publications by other Offices or Persons.—Foreign reports on American education; foreign educational reports and documents; treatises on pedagogy; and educational journals.

Graphic Representations.—Wall maps and charts; portfolios of engravings, drawings, and photographs; busts; paintings, and other portraits.

Models of Educational Buildings.—The primitive log school-house; country school-house of to-day; city graded school-house; college buildings; details as to dormitories, ventilative apparatus, school-rooms, etc.; models of adobe and sod school-houses.

Specimens of School Furniture, Apparatus, and text-books.—Historic collection, showing progress in text-books; specimens and models of school desks, seats, black boards, school maps, charts, etc.; specimens of modern slates, globes, natural history cabinets, chemical and philosophical apparatus, chemical appliances, etc.

Miscellaneous Collections of Interest.—Selected volumes of state and city educational reports; catalogues of private schools, academies, seminaries, colleges, and professional schools, selected series; catalogues and reports of orphan, reformatory, and charitable schools for the young, etc.; catalogues and reports of institutions for the deaf mute, blind, etc.; catalogues and reports of libraries; catalogues and reports of museums of art, of science, and of natural history.

These miscellaneous collections, some bound and others in their original condition, will be exhibited as showing specimens of the materials for the study of education, which are published by the systems and corporations themselves.

Volumes of manuscript returns made to the Bureau of Education by educators and school officials of every grade, and used in the preparation of its annual and special reports.

CENSUS OFFICE.

Publications.—Decennial censuses; statistical atlas, 1870.

Surveys, Post-Office, Agriculture.

Graphic Illustrations.—Maps, charts, and diagrams.

Miscellaneous Articles of Interest.—Original schedules of the census of 1790; selected volumes of schedules of subsequent censuses.

GEOLOGICAL AND GEOGRAPHICAL SURVEY OF THE TERRITORIES.**1st Division.**

Publications.—Reports, bulletins, etc.

Graphic Illustrations.—Topographical and geological atlases; wall maps and charts; panoramic photographs; stereoscopic views; photographic portfolios; photographic transparencies; paintings, landscapes, portraits, etc.

Models and Reliefs.—Topographical and geological relief maps; relief sections; models of displacement; models of ancient

ruined cliff habitations; models of same restored.

Collections of Interest.—Geological and mineralogical cabinets; pottery, costumes, weapons, implements, toys, etc.

2d Division.

Publications.—Reports; bulletins; monographs, etc.

Graphic Illustrations.—Topographical and geological atlases; wall maps and charts; panoramic and stereoscopic views; portfolios, albums, and transparent photographs.

Models and Reliefs.—Topographical and geological relief maps; geological structural sections; models of displacement.

Miscellaneous Collections.—Geological and mineralogical specimens; arms, clothing, etc.

POST-OFFICE DEPARTMENT.

The exhibition of this Department is classed under the following general heads:

A MODEL WORKING POST-OFFICE.

This is a branch office or station of the Philadelphia office, and shows the practical workings of the following divisions of this Department, viz.: Box and general delivery system; system of carrier delivery and collections; registered letter system; money-order system; foreign mail system, etc.

RAILWAY MAIL SERVICE DIVISION.

Two railway post-offices or postal cars, equipped with mail-bag catchers, and all other first-class appointments of that service, under charge of railway post-office clerks, by whom the mailing and distribution of outgoing mails is performed. Several models of mail catchers are also exhibited under this head.

Model mail cars,—small size,—exhibiting the practical working of the mail-bag catcher upon a miniature truck inside the building.

AGRICULTURAL DEPARTMENT.

The exhibit from the Agricultural Department embraces as follows:

BOTANICAL DIVISION.

A collection of all the timber trees of the United States, in sections, showing interior and exterior surfaces; specimens of flowers, leaves, and fruits; herbarium specimens of grasses and other specialties.

STATISTICAL DIVISION.

Large outline maps of the United States, showing forest areas, extent, and value of farming lands, and amount of production, by counties; arrangement of charts and diagrams detailing amount of special products, by sections; statistics of farm animals, and illustrated statistics of industrial education; statistical album of miscellaneous details, with charts, diagrams, etc.

ENTOMOLOGICAL DIVISION.

Collections of fruit and vegetable models; birds beneficial and injurious to farmers and

STAMPS, STAMPED ENVELOPE, AND POSTAL CARD DIVISION.

Machine in operation manufacturing stamped envelopes; machine in operation manufacturing postal cards; specimens of all stamps, stamped envelopes, and postal cards; specimens of registered-letter envelopes and post-office official envelopes; specimens of all United States post-office stamps and stamped envelopes, formerly used and now out of date.

MAIL EQUIPMENT DIVISION.

Leather pouches for letter mails; canvas bags for printed and miscellaneous matter; also registered-letter mail bags; mail locks, now in use; mail locks, out of use.

TOPOGRAPHICAL DIVISION.

Railway and general postal-route maps, and money-order office maps.

DIVISION OF BOOKS AND BLANKS.

Specimens of all books, blanks, etc., used by the Department; letter scales; marking and rating stamps.

orchardists; poultry types, illustrated by stuffed specimens; collection of grains and cereals; collection of textile fibres of the United States, with specimens of their manufacture; specimens of tobacco, from different tobacco-producing sections of the United States; mounted collection of beneficial and injurious insects.

MICROSCOPICAL DIVISION.

Series of water-color drawings illustrating typical genera of microscopic fungi; preparations illustrating the characteristics of poisonous and edible mushrooms common to the United States; illustrations displaying the varied character of the starch granules of plants; drawings and illustrations explaining method of distinguishing vegetable and animal fibres, their kind and quality; drawings displaying vegetable and animal cellulose and starches, and illustrating methods of detecting them in organizations.

CHEMICAL DIVISION.

Fertilizers.—Mineral—including phos-

Horticulture, Animals, Fish, Ethnology.

phates, apatite, coprolites, and all minerals and materials yielding potash, etc.; vegetable—muck, peat, sea-weed, and other products of vegetable decomposition; animal—including guanos, bones, refuse from abattoirs, fisheries, oil manufactures, cancerine, etc.; agricultural products and materials obtained by chemical processes from flour, meal, bran, Rominy; methods of preserving, etc., with special products of manufacture, viz.: starch, dextrine, sago, sugars, gums, glucose; products obtained by fermentation: wine, beer, ale, etc.; products of acetous fermentations;

tanning materials of the United States: barks, leaves; tanning solutions, with modes of manufacture; dyes of the United States; resins and products of distillation of resinous materials; oils, vegetable, fixed, and others; products of milk, classified according to methods of production.

HORTICULTURAL DIVISION.

Specimens of economic and utilizable plants, showing methods of growth, culture, etc., grapes, cotton, tobacco, flax, broom corn, jute, corn, sorghum, yucca fibres, etc.

SMITHSONIAN INSTITUTION, AND COMMISSION ON AMERICAN FOOD FISHES.

The Smithsonian Institution makes the following exhibits:

Publications of the Institution.

Smithsonian contributions to knowledge; miscellaneous collections; annual reports, and other publications.

Meteorological work of the Institution: Charts showing the mean temperature, rainfall, and barometric pressure of the United States.

International exchanges; statistics of number of correspondents; extent of distribution by exchange.

General condition; financial statement.

COLLECTION TO ILLUSTRATE THE ANIMAL RESOURCES OF THE UNITED STATES.

IN CHARGE OF G. BROWNE GOODE.

Animals Beneficial or Injurious to Man—Mammals; birds; reptiles; amphibians; fishes; elasmobranchiates; marsipobranchiates; leptocephalians; insects; arachnids; crustaceans; worms; mollusks; radiates; protozoans and marine products not of animal nature.

Means of Pursuit and Capture.—Hand-implements; implements for seizure of objects; missiles; baited hooks; angling tackle; nets, and traps.

Apparatus for Wholesale Destruction.—Hunting animals; decoys and disguises; pursuit—its methods and appliances.

Means of Utilization.—Preparation and preservation of foods; manufacture of textile fabrics, felts and stuffings; preparation of the skin and its appendages; the hard materials; oils, glues, drugs, perfumes, chemical products, fertilizers and lime; preservation of the animal for scientific uses.

Animal Products and their Applications.—Food; clothing; materials employed in the arts and manufactures.

Protection and Culture of Useful Animals.—Investigation; protection, and propagation.

COLLECTION TO ILLUSTRATE THE FISHERY RESOURCES OF THE UNITED STATES.

This is covered to a considerable extent by the preceding group, in connection with which it is arranged. The special features will embrace the following:

Fishing vessels, boats, etc., life size and models.

The apparatus and dories used in the whale fisheries.

Nets, traps, and pounds.

Hooks, lines, baits, etc.

Cast, photographs, and drawings of fish and other aquatic animals.

Prepared or living specimens of aquatic animals.

Products of the waters.

Economical applications of the above products.

E.—COLLECTION TO ILLUSTRATE THE ETHNOLOGY OF THE UNITED STATES.

IN CHARGE OF DR. CHARLES RAW.

(This exhibition is made conjointly with the Indian Bureau of the Interior Department.)

Objects of Stone.

Flaked and chipped stone; raw material (pieces of flint, etc.); flakes and cores of flint, obsidian, etc.; rude or unfinished implements; arrow and spear heads; perforators and scrapers; cutting and sawing implements; dagger-shaped implements; leaf-shaped implements; digging implements, and wedge or celt-shaped implements.

Pecked, ground, and polished stone; wedges or celts; chisels; gouges; adzes; grooved axes; hammers; ceremonial weapons; cutting tools; scraper and spade-like implements; pendants and sinkers; discordal stones, etc.; pierced tablets and boat-shaped objects; grinding and polishing stones; stone vessels; mortars; pestles; tubes; pipes; ornaments, and sculptures.

Objects of Copper.

Implements and ornaments.

Objects of Bone.

Implements, weapons, and ornaments.

Objects of Shell.

Utensils, implements, and ornaments.

Objects of Clay.

Mound pottery and terra-cottas.

Objects of Wood.

Fragmentary objects and carvings of an early date.

Ethnological Series.

Man.—Skulls, mummies, etc.

Culture.—Aliments, food (mineral and vegetable), drinks, narcotics, and medicines.

Habitations.—Models of houses, tents, etc., and appurtenances.

Furniture.—Cradle boards, mats, etc.

Vessels and other utensils of household use.—Earthenware; carved horn and wooden ware; stone ware; wicker work; bladders and boxes.

Utensils for smoking, etc.—Pipes; tobacco pouches; snuff apparatus, etc.

Receptacles used as means of transportation.—Pouches, bags, raw-hide cases, burdens, etc.

Ethnology, Minerals.

Clothing.—Raw material; complete suits; head, body, hand, leg, and foot clothing; parts of dress.

Personal adornment.—Skin ornamentation; head, neck, breast, body, and limb ornaments; toilet articles.

Implements of general use of war and the chase, and of special crafts.—Implements for cutting, drilling, etc.; lances, bows and arrows, clubs, tomahawks, etc.; shields, body armor, etc.; implements for fire-making, arrow-making, pottery, for procuring and manufacturing food; agricultural implements; implements used in spinning, weaving, sewing, and embroidery.

Means of locomotion and transportation.—Snow shoes, ice creepers, etc.; balsas, dug-outs, bark canoes, hide boats, etc.; saddles, bridles, halters, harness, etc.; sleighs, etc.

Games and pastimes.—Gambling implements; masks, etc., used in dancing; rackets, balls, etc.; toys.

Music.—Drums, rattles, whistles, flutes, etc.

Art.—Pictorial representations and carvings.

Superstition.—Charms, mythological figures, etc.

COLLECTION TO ILLUSTRATE THE MINERAL RESOURCES OF THE UNITED STATES.

IN CHARGE OF W. P. BLAKE.

The principal objects of this collection of the useful ores and minerals of the country have been to illustrate: 1st. The nature and variety of the mineral resources of the United States; 2d. The geographical distribution and geological associations of the minerals; 3d. The extent to which they have been utilized; 4th. The mechanical, metallurgical, and chemical processes by which they are extracted or converted into useful products; 5th. The inherent and comparative qualities of the extractive products. A portion of the collection is arranged according to the nature of the objects, irrespective of locality, but the bulk of the Exhibition is grouped geographically by States. There is also a section devoted to models and drawings, and one to geological maps and graphic charts. This collection occupies the northeast portion of the Government Building, upon the right of the main aisle.

I. SYSTEMATIC SERIES, GROUPED IRRESPECTIVE OF LOCALITY, IN THE FOLLOWING ORDER:

a Crystalline minerals, chiefly for scientific and educational purposes.

b Fuels and petroleum.

c Ores, metals, and their immediate derivatives.

d Ornamental stones and gems.

e Building stones; marbles, etc.

f Artificial stones; lime; mortars; cement.

g Fictile materials and direct products, including refractory materials, etc.

h Pigments; colors; detergents.

i Grinding, abrading, and polishing substances.

k Fertilizing substances.

l Sulphur, salts, and minerals chiefly used in chemical manufactures.

II. ORES, MINERALS, AND METALLURGICAL PRODUCTS, GROUPED BY STATES.

Maine.—Iron ores, limestone and pig iron; granite for buildings and monuments.

New Hampshire.—Granitic and metamorphosed rocks; granite; geological map of the State.

Vermont.—Marble; slate of various colors; roofing slate, etc.; iron ores and limonite; chilling pig iron; spiegeleisen; kaolin and fire brick; sand for glass making; copper ores, copper, and metallurgical products; scythe stones.

Massachusetts.—Iron ore, siderite; magnetic iron ore, and steel produced from it; iron and steel wire; emery, massive and associate; corundum, corundophyllite, diaspor, red oxide of titanium, and ilmenite; argentiferous lead ore, galenite; copper ore; syenite and porphyry; porphyry, a series of polished specimens; granite; sand for glass making; glass, cut and pressed; pearl ash and red lead; kaolin; potters' clay, brick clay, etc.; potters', paper, and alum clay; marble and limestone; geological map of the State.

Rhode Island.—Granite, for building and monumental purposes; magnetite; anthracite and graphitic coal, in large mass and in lumps.

Connecticut.—Granite and building stone; marble and limestone; serpentine marble, verd antique; barytes (sulphate of barytes); kaolin, brick clay, and products; iron ores, limonite, etc.; pig iron; iron ore, spathic and associates; cement steel; mining picks and hammers; copper and alloys, nickel silver, etc.; feldspar, silice, etc., for pottery purposes; geological map of the State.

New York.—Magnetic iron ores, building stones, etc.; fluxes, fuels, and iron; Bessemer steel; hematite, magnetite, etc.; malleable cast iron; puddled iron and muck bar; limestone and lime; hydraulic limestone, hydraulic cement, and cement drain-pipe; kaolin, crude and washed; "incombustible mineral wool," or nitrous fibre "slag felting;" lead and tin foil; fire clay and fire clay goods, refractory materials, etc.

New Jersey.—Magnetic iron ores; iron ore; massive and granular willemite; zinc ores and franklinite; zinc; spiegel iron, "franklinite iron"; calamine (silicate of zinc); potters' and brick clay and iron-stone china ware; refractory furnace materials, fire brick, etc.; fire-brick clay and fire brick, etc.

Pennsylvania.—Iron ore, flux, and fuel; coal and coke; kaolin; limestone; iron ores, limonite, specular iron, etc.; copper ores, copper and copper products; petroleum and petroleum products; glass, and materials for its manufacture; window glass and materials; pig iron and ores; nickel and cobalt ores and products; cast steel; sheet iron; chromite.

Maryland.—Iron ore, flux, and fuel.

Virginia.—Zinc ores, calamine; lead ores, galena, cerussite, etc.; gypsum; barytes; kaolin; iron ores, magnetite, hematite, limonite, and fossil ore; coal and coke; copper ores; salt brine, fossil salt, and prepared salt; gold-bearing quartz; manganese; granite.

West Virginia.—Bituminous coal; coke; iron ores, black band, brown hematite, and fossil ores.

North Carolina.—Gold and silver ores; copper ores; marble; corundum and the associate minerals; iron ores and iron; muscovite (mica); geological map of North Carolina.

South Carolina.—Phosphatic fossils, mineral fertilizers, etc.; minerals and ores.

Alabama.—Ores and coal; spiegeleisen and ores; geological map of Alabama.

Minerals, Geological Maps and Publications

Tennessee.—Iron ores, coal and mineral products; copper pyrites and vein stone; refined copper; geological map of Tennessee.

Georgia.—Auriferous gravel; gold-bearing quartz, etc.

Kentucky.—A series of specimens illustrating the mineral resources of the State.

Louisiana.—Rock salt; sulphur.

Ohio.—Open hearth steel; iron ores, flux and fuel; pig iron; potters' clay and pottery; crude and manufactured plaster; building stone.

Indiana.—Specimens of block coal, and iron ores; potters' clay; "Indianite."

Missouri.—Lead ores, galena, cerussite, etc.; pig lead; zinc ores; barytes, associated with lead ores; marble, limestone, and granite; iron ores, magnetite, specular iron, hematite; pig iron; copper ore; coal and coke; fossil plants, etc.; porphyry.

Michigan.—Iron ores, flux, and Bessemer pig iron; specular and magnetic; native copper, crystallized; mass and stamp work, with silver and associate minerals, and in amygdaloid and "ash bed;" building stone;

native silver; copper and "copper conglomerate."

Colorado.—Gold and silver ores; gold, and ores containing tellurium; silver and copper ore.

Utah.—Silver ores.

Idaho.—Gold and silver ores.

Montana.—Silver ores; argentiferous galena.

Arizona.—Copper ores; gold quartz, and other minerals.

Nevada.—Silver and gold ores.

California.—Gold and silver ores; auriferous gravel, "cement" with gold; quicksilver ores, cinnabar and native quicksilver; copper ores; tin ores and tin.

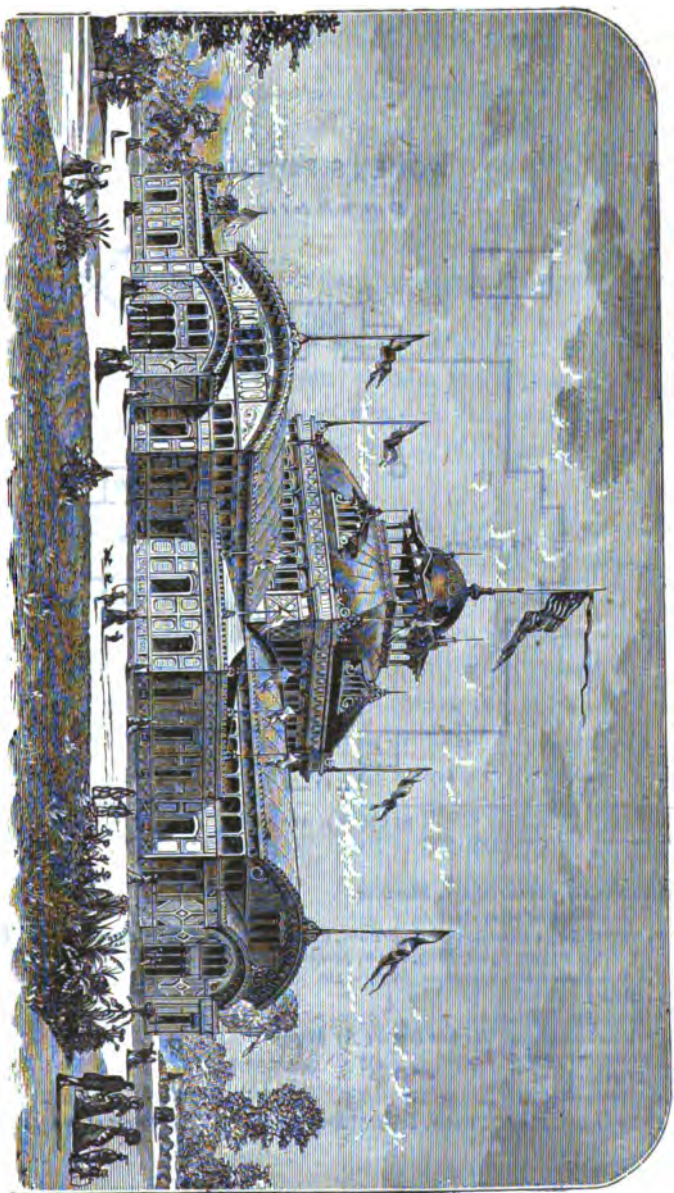
III. MODELS AND DRAWINGS.

IV. GEOLOGICAL MAPS AND GRAPHIC CHARTS.

Geological Map of the United States and Territories.

Geological and other Maps of the State of New Hampshire.

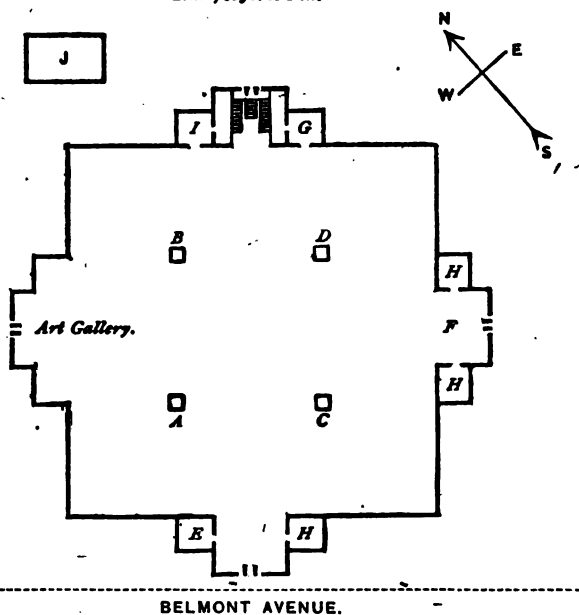
Geological Reports and Publications.



WOMEN'S PAVILION.

WOMEN'S PAVILION.

Scale, 80 ft. to 1 in.



Section A.—Art, Industrial Art, Education.

" B.—Manufactures, etc.

" C.—Foreign Exhibits—Great Britain, Canada, Brazil, Norway, Sweden, Japan, France, Egypt, Tunis, Italy, Spain, Netherlands.

" D.—Needlework, inventions, patents, etc.

E.—Library.

F.—Benevolent Institutions.

G.—Editorial Office of "The New Century for Women."

H.—Committee Rooms.

I.—Dressing Room.

J.—Kindergarten.

Total Length, 208 ft. Width, 208 ft. Height of Nave, 41 ft. Height of Dome, 67 ft.

No. 153. WOMEN'S PAVILION.

Architect, H. J. SCHWARZMANN.—Size, 26,368 square feet.

THIS pavilion was erected by money raised through the exertions of the women of the United States, and is devoted exclusively to the results of women's labor. It is built of wood, and is situated on Belmont avenue, adjacent to the Horticultural grounds.

OFFICERS AND MEMBERS OF THE WOMEN'S CENTENNIAL
EXECUTIVE COMMITTEE.

President, MRS. E. D. GILLESPIE, Philadelphia.

Vice-President, MRS. JOHN SANDERS, Philadelphia.

Secretary, MRS. RICHARD P. WHITE, Philadelphia.

Treasurer, MRS. FRANK M. ETING, Philadelphia.

Members.

MRS. JOHN W. FORNEY, Philadelphia.

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MRS. HENRY COHEN, Philadelphia.

MRS. AUBREY H. SMITH, Philadelphia.

MRS. MATTHEW SIMPSON, Philadelphia.

MRS. EMILY R. BUCKMAN, Philadelphia.

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MRS. JOHN PENN BROCK, Philadelphia.

MRS. THEODORE CUYLER, Philadelphia.

MRS. ROBERT K. WRIGHT, Philadelphia.

MRS. L. C. HUGHES, Arizona.

MRS. FRED. MACCRELLISH, California.

MRS. M. E. P. BOULIGNY, Dist. of Col.

MRS. J. M. WASHBURN, Dakota.

MRS. ELLEN CALL LONG, Florida.

MRS. F. R. WEST, Iowa.

MRS. W. S. RAND, Kentucky.

MRS. F. W. CROWELL, Kansas.

MRS. M. C. LUDELING, Louisiana.

MRS. BION BRADBURY, Maine.

MRS. JAMES T. FIELDS, Massachusetts.

MRS. K. S. MINOR, Mississippi.

MRS. S. B. BOWEN, Montana.

MRS. W. L. DAYTON, New Jersey.

MRS. EDWARD F. NOYES, Ohio.

MRS. F. W. GODDARD, Rhode Island.

MRS. M. J. YOUNG, Texas.

MRS. C. J. FAULKNER, West Virginia.

MRS. J. B. THORP, Wisconsin.

MRS. WORTHINGTON HOOKER, Conn.

MRS. W. O. ROCKWOOD, Indiana.

MRS. WM. GEO. REED, Maryland.

MISS E. S. STEVENS, New Hampshire.

MRS. GEN. G. W. CULLUM, New York.

MRS. J. GREGORY SMITH, Vermont.

MRS. J. M. HECK, North Carolina.

MRS. AARON V. BROWN, Tennessee.

MISS ELIZA R. SNOW, Utah.

MRS. GOV. BEVERIDGE, Illinois.

CHAIRMEN OF WARDS
IN THE
CITY OF PHILADELPHIA.

WARD.	
Second, ...	Mrs. C. M. PETERSON.
Third, ...	Mrs. B. MORTON.
Fifth, ...	Miss FORNEY.
Sixth, ...	Miss BOMEISLER.
Seventh, ...	Mrs. R. L. ASHHURST.
Eighth, ...	Mrs. TUNIS.
Ninth, ...	Miss LOUISA E. CLAGHORN.
Tenth, ...	Miss MAGEE.
Eleventh, ...	Mrs. ALEX. H. NEWITT.
Twelfth, ...	Mrs. WILLIAM CONN.
Thirteenth, ...	Mrs. T. W. BAILY.
Fourteenth, ...	Mrs. I. HYNEMAN.
Fifteenth, ...	Mrs. A. W. RAND.
Sixteenth, ...	Mrs. DR. KNORR.
Eighteenth, ...	Mrs. DR. CLARIDGE.
Nineteenth, ...	Mrs. T. W. SWAIN.
Twentieth, ...	Mrs. ABNER LINCOLN.
Twenty-first, ...	Mrs. W. B. STEPHENS.
Twenty-second, ...	Miss ZELL.
Twenty-fourth, ...	Mrs. E. F. HARDIE.
Twenty-fifth, ...	Mrs. ROBERT KENNEDY.
Twenty-sixth, ...	Miss CARR.
Twenty-seventh, ...	Mrs. C. MCILVAINE.
Twenty-eighth, ...	Mrs. T. J. DAVIS.
Twenty-ninth, ...	Mrs. W. B. MANN.
Thirty-first, ...	Mrs. E. H. RYAN.

Furniture, Laundry Appliances, Woven Goods.

Ceramics—Pottery, Porcelain, Glass, etc.

- 1 Hoopes, Ellen C., Soho Pottery, Pittsburg, Pa.—Ironstone china toilet set. Sec. B. 210

Furniture and Objects of General Use in Construction and in Dwellings.

- 2 Olson, Christine, Chicago, Ill.—Organ and table made of three thousand pieces of wood. Sec. D. 217
- 3 Stiles, Mrs. E. W., Philadelphia, Pa.—Combination desk and book paper file. Sec. D. 217
- 4 Chapman, Miss Laura M., Friendship, N. Y.—Lap table. Sec. D. 217
- 5 Spofford, Mrs. Jennie H., Philadelphia, Pa.—Mattress supporter, mosquito bar. Sec. D. 217
- 7 James, Mary I., Cambridge, Mass.—Holly wood chess table. Sec. A. 217
- 8 Page, Mrs. Elizabeth M., Philadelphia, Pa.—Dirt catcher. Sec. D. 217
- 9 Steele, Mrs. M. W., Woodbury, N. J.—Toy set, quill furniture. Sec. B. 217
- 10 Dickerson, Mrs. Y. G., Belfast, Me.—Embroidered camp chair, foot rest, and sofa pillow. Sec. D. 217
- 11 Mountain, Mrs. H. B., New York, N. Y.—Life-preserving mattress. Sec. D. 217
- 12 Cowen, Mrs. S. J., Hartford, Conn.—Book case. Sec. D. 217
- 13 Williams, Mrs. G. A., Baltimore, Md.—Leather table with checker board. Sec. D. 217
- 14 Phillips, Mrs. Richmond L., New York, N. Y.—Table painted in water colors. Sec. D. 217
- 15 Ladd, Miss Gertie, North Hero, Vt.—Student's book-frame. Sec. D. 217
- 16 Allen, Mary W., Cambridge, Mass.—Chess table, with pen and ink sketches. Sec. D. 217
- 17 Story, Miss Mary, Cambridge, Mass.—Chess table, with etchings. Sec. D. 247
- 18 Women's Executive Committee of Wisconsin.—Easel. Sec. D. 217
- 19 French, Julie Blanche, Boston, Mass.—Bedsteads containing drawers, interior safe, etc. Sec. D. 217
- 20 Davey, Mrs. Israel, Brandon, Vt.—Slate stand tops and panels. Sec. A. 217
- 21 Mitchell, Mrs. Carrie, Normal, Ill.—Combined bureau, table, cupboard, and sink. Sec. D. 217
- 22 Bulfinch, Miss Ellen S., Cambridge, Mass.—Book rack, with pen and ink etchings. Sec. A. 220
- 23 Smith, Mrs. O., Chicago, Ill.—Range. Sec. D. 222
- 24 Sherwood, Amanda S., Philadelphia, Pa.—Griddle greaser. Sec. D. 224
- 25 Fox, Jane Ann, Stamford, N. Y.—Dish drainer. Sec. D. 224
- 26 Whitman, Mrs. E. J., Oakland, Cal.—Kettle and pan scraper. An indispensable article for kitchen use. State rights for sale. Sec. D. 224

- 27 Boynton, Mrs. E. E., Evanston, Ill.—Tea kettle one hundred years old. Sec. D. 224

- 28 Kelsey, Phoebe M., Philadelphia, Pa.—Meat tenderer. Sec. D. 224

- 29 Steiger, Mrs. Hannah, Laurel, Md.—Lock barrel cover. Sec. D. 224

- 30 Hunkins, Mrs. D. Grace, Allegheny, Pa.—Rolling pin, containing ten articles used in cooking. Sec. D. 224

- 31 Sterling, Mrs. Charlotte, Gambia, O.—Dish washer. Sec. D. 224

- 32 Wells, Miss Glory Anna, Luzerne, Pa.—Dish washer. Sec. D. 224

- 33 Inesly, Susan V., New York, N. Y.—Reversible sad iron stand. Sec. D. 225

- 34 Short, Mrs. S., Cincinnati, O.—Blanket washer, mangle, ironer, paint cleaner, and stretcher for drying curtains, etc. Sec. D. 225

- 35 Ball, Mrs. S. P., Philadelphia, Pa.—Gas smoothing iron. Sec. D. 225

- 36 Tremper, Miss Marietta, New York, N. Y.—Window-washing machine. Sec. D. 225

- 37 Colvin, Margaret P., Battle Creek, Mich.—Triumph rotary washing machine, combining three principles: 1st, forcing steam through the goods—a powerful detergent; 2d, revolving in hot suds, with a constant change of position; 3d, the alternate elevation and falling of the goods is equivalent to light pounding. This machine is the successful result of years of experiment by a practical woman, to accomplish the perfect cleansing of all fabrics, from carpets to laces, without rubbing. With this machine, a child of twelve years can do more work, and do it better, than two women by ordinary methods. Sec. D.

- 38 Bancroft, Sarah H., Media, Pa.—Bathing chair. Sec. D. 226

- 39 Griswold, Mrs. Ellen D., Hagerstown, Md.—Sash fixture. Sec. D. 227

- 40 Reibert, Babetta, Montgomery, S. C.—Bell pulls. Sec. D. 227

- 41 Anderson, Miss Ellen D., Frederick, Md.—Shutter fastener. Sec. D. 227

Yarns and Woven Goods of Vegetable or Mineral Materials.

- 42 Collignon Bros., New York, N. Y.—Cane-seat work, made by women. Sec. D. 229

Woven and Felted Goods of Wool, etc.

- 43 Wilkinson, Mrs. James A., Providence, R. I.—Yarn from the hair of an Esquimaux dog. Sec. D. 235

- 44 Bates, Mrs. Edward, Newport, R. I.—Hand-spinning and carding of wool and flax. Sec. D. 235

- 45 Shapleigh, Mrs. E. B., Philadelphia, Pa.—Hand-made rug. Sec. D. 239

- 46 Ham, Miss Amanda S., Rochester, N. Y.—Rag rug. Sec. D. 239

- 47 Wingate, Mrs. J. F., Hampton, N. H.—Rag rugs. Sec. D. 239

Clothing, Jewelry, and Ornaments; Traveling Equipments.

- 48 Drury, Mrs. L., Springfield, O.—Dress cutting system. Sec. D. 250

Clothing, Embroideries, Laces, Fanny Articles.

- 49 Brooks, C. S., Philadelphia, Pa.—System for cutting clothing. Sec. D. 250
- 50 Union Benevolent Society, Philadelphia, Pa.—Infants' clothing. Sec. D. 250
- 51 Jones, Mrs. M. A., Philadelphia, Pa.—Children's clothing, dress-cutting system. Sec. D. 250
- 52 Tardy, Mrs. C., Paterson, N. J.—Infants' exercising corset. Sec. D. 250
- 53 Brosse, Madame S. C., San Francisco, Cal.—Models for self-measurement. Sec. D. 250
- 54 Keyser, Mrs. E., Philadelphia, Pa.—Misses' clothing and infants' outfits. Sec. D. 250
- 55 Harman, Mrs. E. F., New York, N. Y.—Dress and pattern designer. Sec. D. 250
- 56 Cornwell, Mrs. Elmira, Philadelphia, Pa.—Self-fitting chart, and patterns for cutting ladies' and children's clothing. Sec. D. 250
- 57 Overend, Rebecca C., Fairlee, Md.—Tippet and muff from pod of wild cotton. Sec. B. 250
- 58 Livingston, L. M., New York.—Garment cutting, tailors' system. Sec. D. 250
- 59 Flynt, Mrs. Olivia P., Boston, Mass.—Weather protector, linen duster, skirts, and under garments. Sec. D. 250
- 60 Stearns, Mrs. A. B., Woburn, Mass.—Diagrams for cutting dresses and shirts. Sec. D. 250
- 62 Dyer, Miss Fannie E., Providence, R. I.—Child's apron. Sec. D. 250
- 63 Merritt, Mrs. Jane E., Brooklyn, N. Y.—Cape made from the silk of the milk weed pod. Sec. B. 250
- 64 Gardiner, Miss Mary Jane, Warwick, R. I.—Trimming cutter. Sec. D. 250
- 65 Blauvelt, Mrs. Mary, New York, N. Y.—Marking and cutting gauge for tailors and dressmakers. Sec. D. 250
- 66 Kellogg, Mrs. D. G. M., Keokuk, Ia.—Hosiery. Sec. B. 250
- 67 Forsyth, Mrs. S. M., Manchester, Ia.—Hosiery. Sec. B. 250
- 68 Champney, Mary H., Billerica, Mass.—Stockings knit at ninety-eight years of age. Sec. D. 250
- 69 Lovering, Mrs. Abigail F., Oxford, Me.—Mittens knit at the age of one hundred years and four months. Sec. D. 250
- 70 Women's Centennial Committee of Lowell, Mass.—Lowell hosiery. Sec. D. 250
- 71 Robbins, L. E., Boston, Mass.—Diagram for cutting dresses. Sec. D. 250
- 72 Employment Society, Providence, R. I.—Sec. D. 250
 a Infant's shirt, child's skirt, and afghan. 250
 b Embroidered flannel skirt. 250
- 73 Bonney, Sarah E., Sterling, Mass.—Sec. B. 250
 a Muff, boa, and cap. 250
 b Feather fans. 254
- 74 Shaw, Mrs. James, Jr., Providence, R. I.—Infant's socks. Sec. D. 250
- 75 Summer, Mrs. Sallie O., Providence, R. I.—Mittens. Sec. D. 251
- 75a Conant, Mrs. Orpha, Dwight, Ill.—Hat of common grass, gathered, bleached, and sewed in her eighty-fourth year. Sec. D. 251
- 76 Todd, Miss Lizzie, Columbus, O.—Embroidery. Sec. D. 250
- 77 Marsh, Mrs. Charles P., Woodstock, Vt.—Embroidery for camp chair. Sec. D. 250
- 78 Bach, Jennie & Flora, Philadelphia, Pa.—Embroidered table cover. Sec. D. 250
- 79 Lucas, Mrs. Mary, Charlotte, N. C.—Lace trimmed and embroidered handkerchief. Sec. D. 250
- 80 Paul, Mrs. C. F., Saratoga Springs, N. Y.—Honiton collar and lace. Sec. D. 250
- 81 Beach, Edith, West Hartford, Conn.—Child's rug. Sec. D. 250
- 82 Brush, Miss Jennie, New York, N. Y.—Embroidered lambrquins. Sec. D. 250
- 83 Todd, Miss Lizzie, Columbus, O.—Embroidered shawls and sacque. Sec. D. 250
- 84 Ladies of Immanuel Church, Belkows Falls, Vt.—Needlework. Sec. D. 250
- 85 St. John's Guild, New Haven, Conn.—Ecclesiastical embroidery. Sec. D. 250
- 86 Burton, Susie, Laurel, Md.—Tapestry picture: Joseph presenting his Father to Pharaoh. Sec. D. 250
- 87 Jones, Anna S., Worcester, Mass.—Tatted cushion cover. Sec. D. 250
- 88 Luce, Miss Caroline, Washington, D. C.—Honiton lace. Sec. D. 250
- 89 Weld, Mrs. William G., Boston, Mass.—Embroidered panels; imitation of antique lace. Sec. D. 250
- 90 Skuse, M. J. & F. A., Boston, Mass.—Irish point lace. Sec. D. 250
- 91 Shepherd, Mrs. Emeline, Northampton, Mass.—Embroidered handkerchief. Sec. D. 250
- 92 Jones, Miss Anna, Worcester, Mass.—Cushion cover. Sec. D. 250
- 93 Leonard, Miss Louise, New Bedford, Mass.—Lace ends for necktie. Sec. D. 250
- 94 Fay, Sarah R., Lancaster, Mass.—Embroidered blanket. Sec. D. 250
- 95 Hathaway, Mrs. Mary, New Bedford, Mass.—Embroidered scarf. Sec. D. 250
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- 97 Women's Executive Committee of Wisconsin.—Seal of Beloit College, embroidered on white satin. Sec. D. 250
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- 99 Leigerot, Mrs. Marie, Keokuk, Ia.—Thread lace. Sec. D. 250
- 100 Clothier, Miss Minnie J., Nevada, Ia.—Honiton point. Sec. D. 250
- 101 Scott, Mrs. T. R., Burlington, Ia.—Point lace bertha; handkerchief of Honiton point. Sec. D. 250
- 102 Scott, Mrs. John, Keokuk, Ia.—Guipure barb. Sec. D. 250

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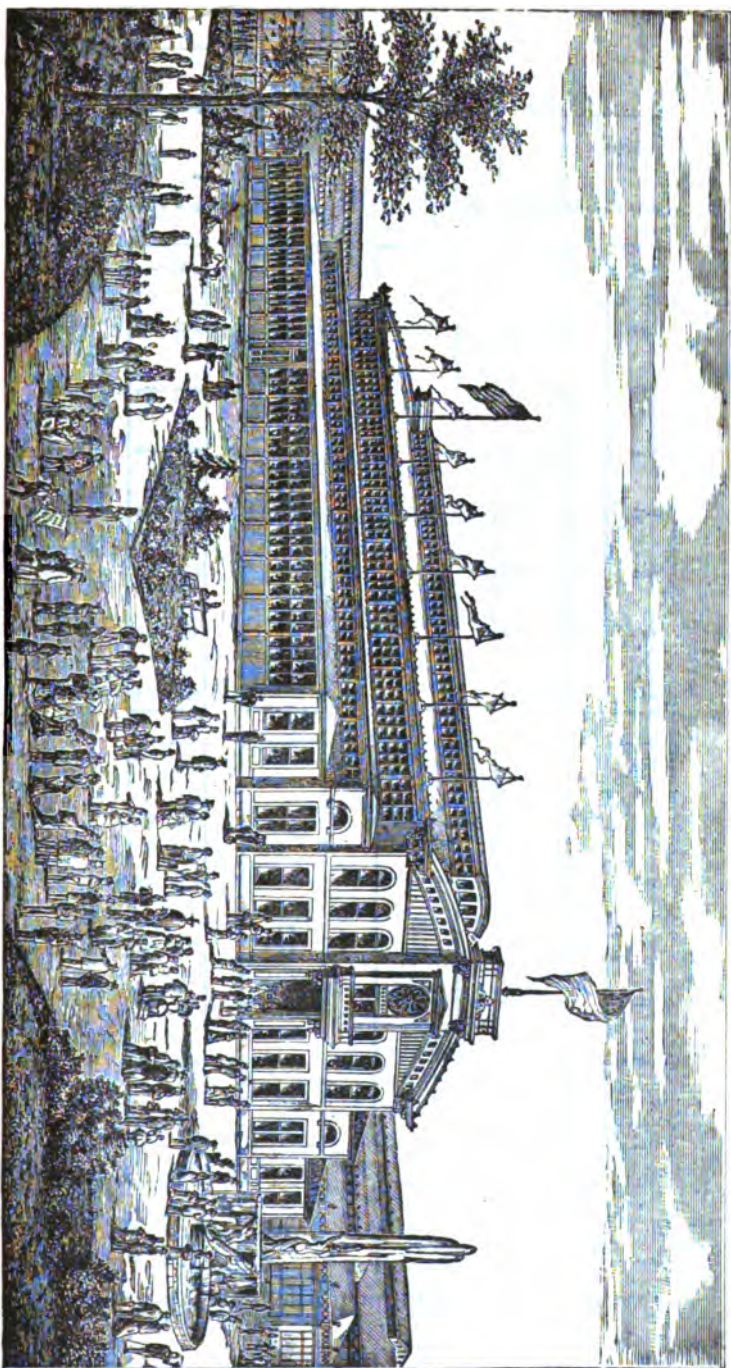
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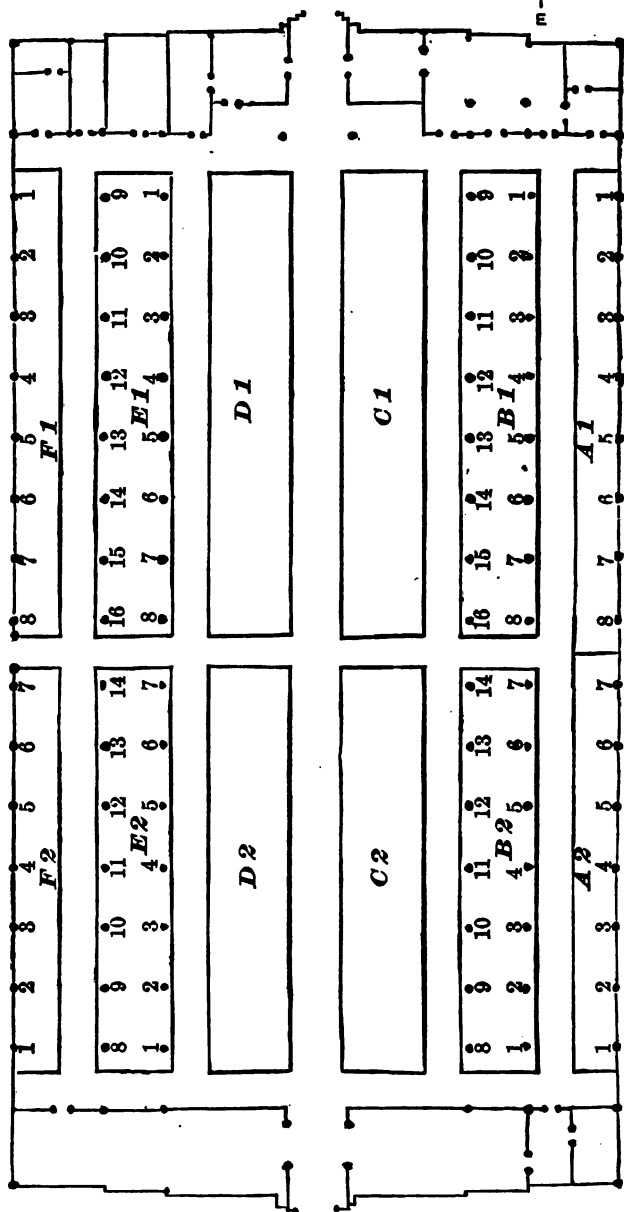
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- 772 Itamaraty, Viscountess de, Rio de Janeiro.—Embroidered pin case. 254
- 773 Silva, M. M., Province of Paraná.—Embroidered watch case. 254
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- 780 Natté, Mille, Rio de Janeiro.—Feather flowers, fans, coiffures, ornaments, etc.; ornaments made of bugs. 254
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- 783 Convent das Mercês, San Paulo.—Branch made of the pith of the fig-tree. 254
- 784 Serzidillo, D. Anna M., Pará.—Frame made of cork. 254
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For location of objects, see ground plan, p. 83.



SHOE AND LEATHER BUILDING.

ELM AVENUE.



SHOE AND LEATHER BUILDING.—GROUND PLAN.

SHOE AND LEATHER BUILDING. No. 7.

Architect, A. B. DARRY.—Size, 314 feet by 160 feet.

The building is constructed of wood, two stories high, and is situated on Elm Avenue, south of Machinery Hall. Its name indicates its purpose.

KEY TO THE NOTATION.

THE location of objects in the Shoe and Leather Building is shown by a letter and two figures, indicating the nearest column of the building. The letter and first figure designate the section of the building, the second figure the column within that section. The system of numbering is shown on the annexed ground plan.

The class of the classification (See Part I., pages 27-45) to which each exhibit belongs is indicated by the small figures at the end of the line.

Oils, Leather Dressing.

Oils and Leather Dressing.

- 1 Dodd, A. W., & Co., Gloucester, Mass.—Oils for tanners' use. F 1-3. 201
- 1a Hyde Bros., & Swift, New York, N. Y.—Tanners' oils. A 2-1. 201
- 1b Brown, B. F. & Co., Boston, Mass.—Shoe blacking, leather dressing and bronzes. F 1-3. 202
- 1c Cole, W. D., Ashland, Mass.—Belt and hose stuffing. A 1-3. 202
- 2 Miller, Frank, Son, & Co., New York, N. Y.—F 1-4. 202
 - a Harness oils. 201
 - b Shoe blacking, leather dressings, etc. 202
- 2a Stump, F., & Co., Philadelphia, Pa.—Blacking, polishing and burnishing inks. A 2-1. 202
- 2b Boyer, W. P., & Co., Philadelphia, Pa.—Shoe blacking. F 1-2. 202
- 2c Hausler, John, Philadelphia, Pa.—Shoe blacking. F 1-2. 202
- 2d Fletcher & Dwyer, Lynn, Mass.—Burnishers for finishing edges and heels of boots and shoes. D 1-6. 202
- 2e Bartlett, H. A., & Co., Philadelphia, Pa.—Shoe blacking. F 1-1. 202
- 3 Levi & Berg, Philadelphia, Pa.—Shoe blacking and ladies' shoe dressing. F 1-3. 202
- 4 Annear, John, Philadelphia, Pa.—Shoe blacking and stove polish. F 1-2. 202

- 5 Mason, Jas. S., & Co., Philadelphia, Pa.—Shoe blacking. F 1-5. 202
- 7 Bixby, S. M., & Co., New York, N. Y.—Shoe blacking and leather dressing. F 1-4. 202
- 8 Restorff & Bettmann, New York, N. Y.—Leather polish for boots, shoes, traveling bags, etc. B 2-2. 202
- 9 Sawyer, H., Boston, Mass.—Crystalline blue. F 1-3. 202
- 10 Reed, Geo. H., & Sons, Boston, Mass.—Dressings, inks, varnishes, and stains for leather. F 1-3. 202
- 11 Hawthaway, C. L., & Sons, Boston, Mass.—Leather dressings, blackings, stains, and varnishes. These goods are favorably known throughout the United States, Canada, and Europe, and were awarded medals at Boston and Vienna. Visitors at the Shoe and Leather Building will see upon the various exhibits of boots, shoes, harness, and horse collars, specimens of the high finish derived by the use of our dressings, as many of the best goods there are finished with our articles. They are considered indispensable in all manufacturing factories using leather. Our exhibit consists of twenty-one different articles adapted to leather, all of our own invention and production. House established in 1854. E 1-11. 202
- 11a Conihnan, E., & Co., Charlestown, Mass.—Water proof leather preservative. F 1-3. 202

For classes of exhibits, numbered at end of entries, see Classification, Part I., pp. 27-45.

Boots and Shoes.

Boots and Shoes.

- 12 Johnson, N. M., St. Louis, Mo.—Boots and shoes. C 2-11. 251
- 13 Wells, M. D., & Co., Chicago, Ill.—Boots and shoes. C 1-4. 251
- 14 Fargo, C. H., & Co., Chicago, Ill.—Women's, misses', and children's shoes; men's boots. C 2-11. 251
- 15 Falley, L., & Co., Lafayette, Ind.—Men's, boys', and women's calf and kip boots and shoes. C 1-15. 251
- 16 Knees, Chas., Frederick, Md.—Cordovan leather patterns for boots and shoes. D 1-8. 251
- 17 Semenetz, Rudolf, Cleveland, O.—English top boots. D 2-4. 251
- 18 Stribley & Co., Cincinnati, O.—Ladies', misses', and children's shoes. C 2-12. 251
- 18a Davis, Whitcomb, & Co., Boston, Mass.—Seamless felt shoes. D 1-4. 251
- 18b Graves, Ball, & Co., Albany, N. Y.—Shoe lasts. D 2-7. 251
- 18c Ransom, W. A., & Co., New York, N. Y.—Men's, women's, misses', and children's sewed, nailed, and pegged shoes and gaiters. D 2-5. 251
- 18d Keene Bros., Lynn, Mass.—Women's, misses', and children's boots and shoes. D 1-7-8. 251
- 18e Valpey & Anthony, Lynn, Mass.—Women's, misses', and children's boots and shoes. D 1-7-8. 251
- 18f Bartlett & Doak, Lynn, Mass.—Women's, misses', and children's boots and shoes. D 1-7-8. 251
- 18g Boynton & Bancroft, Lynn, Mass.—Women's, misses', and children's soles. D 1-7-8. 251
- 18h Mower, E. W. & C. F., Lynn, Mass.—Women's, misses', and children's boots and shoes. D 1-7-8. 251
- 18i Bubier, S. M., & Sons, Lynn, Mass.—Women's, misses', and children's boots and shoes. D 1-7-8. 251
- 18j Bacheller, C. H., & Co., Lynn, Mass.—Women's, misses', and children's boots and shoes. D 1-7-8. 251
- 19 Hocker, Geo., Cincinnati, O.—Ladies' and gentlemen's boots and shoes. C 2-13. 251
- 20 Kilsheimer, F., Cincinnati, O.—Men's boots, shoes, and gaiters. C 2-13. 251
- 21 Prichard, Smith, & Co., Cincinnati, O.—Boots and shoes. C 2-12. 251
- 22 Alter, Frank & Co., Cincinnati, O.—Boots and shoes. C 2-12. 251
- 23 Cincinnati Shoe Manufacturing Co., Cincinnati, O.—Ladies', misses', and children's boots and shoes. C 2-11. 251
- 24 Feary, Thos., & Sons, Albany, N. Y.—Ladies', misses', children's, and infants' shoes. C 2-11. 251
- 25 East New York Boot, Shoe, & Leather Manufacturing Co., Albany, N. Y.—Women's, misses', and children's shoes. C 2-13. 251
- 26 Newcomb & Walker, Elmira, N. Y.—Men's, boys', youths', women's, misses', and children's shoes. C 1-14. 251

- 27 Burt, Edwin C., New York, N. Y.—Ladies' shoes. C 2-14. 251
- 28 Burt & Mears, New York, N. Y.—Men's boots and shoes. C 2-14. 251
- 28a Dress Reform Co., Boston, Mass.—Designs for ladies' shoes. D 1-6. 251
- 29 Bay State Shoe & Leather Co., New York, N. Y.—Boots and shoes. C 2-14. 251
- 30 Thierry, Ernest J., New York, N. Y.—Gentlemen's gaiters, shoes, and slippers. C 2-14. 251
- 31 Brooks, Edwin A., New York, N. Y.—Cork-sole boots and shoes. C 2-13. 251
- 32 Creed, Eugene, New York, N. Y.—Boot, shoe, and gaiter uppers. C 1-15. 251
- 33 Kenny & McPartland, New York, N. Y.—Ladies', misses', and children's shoes. D 1-5. 251
- 34 Leh, H., & Co., Allentown, Pa.—Boots and shoes. D 2-4. 251
- 35 Adler & Clement, Baltimore, Md.—Ladies', misses', and children's shoes; leather tips formed from the sole. D 1-4. 251
- 36 Dixon, W. T., & Bro., Baltimore, Md.—Ladies', misses', and children's shoes. D 1-2. 251
- 37 Banister & Tichenor, Newark, N. J.—Men's and boys' boots, shoes, and slippers. Finest class hand and machine-sewed. Any of the goods on exhibition duplicated on orders. D 2-4. 251
- 38 Canfield, M. B. & I., Newark, N. J.—Gentlemen's boots and shoes. D 2-5. 251
- 39 Miller, McCulloch, & Ober, Newark, N. J.—Gents' boots and shoes. D 2-4. 251
- 40 Brown, Alex. P., & Co., Philadelphia, Pa.—Ladies', misses', children's, and infants' boots and shoes. C 1-15. 251
- 41 Evans, Thos. R., 28 South Fourth street, Philadelphia, Pa.—"Evans's American gaiter" and graduated expanding boots and shoes. Patented. D 2-5. 251
- 42 Jenkins Bros. & Co., South Abington, Mass.—Steel shanks for boots and shoes. C 1-15. 251
- 43 Erskine, M. A., & Co., Philadelphia, Pa.—Ladies' shoes. C 1-12. 251
- 44 Graf, L., & Bro., Newark, N. J.—Boots and shoes. C 1-13. 251
- 45 West Bros., Philadelphia, Pa.—Ladies', misses', children's, and infants' shoes. C 1-13. 251
- 45a Moore, Wm. B., Camden, N. J.—Metal tips for shoes, corsets, etc. D 1-4. 251
- 45b Barrows & Boyd, New York, N. Y.—Ladies' and children's fine shoes. D 2-5. 251
- 45c Shaw, Chas. A., Boston, Mass.—Improved shoe lasts. D 1-5. 251
- 45d Prouty, Isaac, & Co., Spencer, Mass.—Men's, boys', and youths' boots. D 1-3. 251
- 45e Kent, Edward E., & Co., Spencer, Mass.—Men's, boys', and youths' boots. D 2-7. 251
- 45f Cooper, R., Ithaca, N. Y.—Centennial shoe. D 1-5. 251

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.

Boots and Shoes.

- 46 Gates, Allen, & Bro., 413 Dillwyn streets, Philadelphia, Pa.—Ladies' machine-sewed turn boots, shoes, and slippers. Warranted equal in quality and workmanship to hand-made shoes. C 1-14. 251
- 47 Sollers, S. D., & Co., Philadelphia, Pa.—Infants' and children's shoes and slippers. C 1-14. 251
- 48 Richelderfer, J. H., Philadelphia, Pa.—Over gaiters and leggings. C 1-13. 251
- 49 Kelley & Moore, Philadelphia, Pa.—Ladies' shoes. C 1-12. 251
- 50 Targett, John, Philadelphia, Pa.—Boot, shoe, and gaiter patterns. C 1-12. 251
- 50a Claflin, Waldo M., Philadelphia, Pa.—Men's and boys' boots and shoes, with Estabrook, Wires, & Co. screws. C 1-12. 251
- 50b Pratt, Henry J., Abington, Mass.—Last-block fastening. D 1-6. 251
- 50c Butterfield, Wm., & Co., New York, N. Y.—Button fastener, and plate-lace hook. D 1-6. 251
- 50d Phinney, S. C. & J. G., Stoughton, Mass.—Boot and shoe counters, made of sole leather. D 2-4. 251
- 51 Schmid, Jacob, Philadelphia, Pa.—Ladies' boots and shoes. C 1-12. 251
- 52 Benkert, C., & Son, Philadelphia, Pa.—Gentlemen's boots and shoes. C 1-16. 251
- 53 Zaun, Jacob, & Son, Philadelphia, Pa.—Men's boots and shoes. C 1-13. 251
- 54 Dreisbach, Wm., & Co., Philadelphia, Pa.—Shoe bows and wooden heels. C 1-15. 251
- 55 Heulings, Abram, American Hotel, Chestnut street, opposite Independence Hall, Philadelphia, Pa.—Ice creepers which can be attached to any lady's or gentleman's boot or shoe, and worn alike in the parlor or on icy sidewalks. C 1-15. 251
- 56 Meyer, C. Adolph, Philadelphia, Pa.—French calf boots, shoes, and gaiters. C 1-12. 251
- 57 Helweg & Co., Philadelphia, Pa.—Boots and shoes. C 1-16. 251
- 58 Mayer & Stern, Philadelphia, Pa.—Ladies', children's, and infants' shoes. C 1-12. 251
- 60 Dalsheimer Bros., Philadelphia, Pa.—Ladies', misses', children's, and infants' shoes. C 1-15. 251
- 61 Sausser, Dangler, & Co., Philadelphia, Pa.—Women's, misses', and children's shoes. C 1-13. 251
- 62 Ziegler Bros., Philadelphia, Pa.—Ladies', misses', children's, and infants' shoes. C 1-14. 251
- 63 Laird, Schober, & Mitchell, Philadelphia, Pa.—Boots and shoes. C 1-15. 251
- 64 Schiff, W. L., Philadelphia, Pa.—Children's shoes, and ladies' white kid boots and slippers. C 1-15. 251
- 64a Claflin, Aaron, & Co., New York, N. Y.—Wax, grain, split, kip, and calf boots, shoes, etc. D 1-2. 251
- 64b Gittens, J. K., Brooklyn, N. Y.—Cork and wool insoles. C 2-13. 251
- 64c Saller, Lewin, & Co., Philadelphia, Pa.—Men's, boys', women's, and misses' boots and shoes. C 1-13. 251
- 64d De Haven, A. R., & Son, Philadelphia, Pa.—Ladies' hand-sewed boots and shoes. C 1-12. 251
- 64e Fontyn, George, Philadelphia, Pa.—Men's boots, shoes, and gaiters. C 1-13. 251
- 64f Reimel, Louis, Philadelphia, Pa.—Shoe uppers. C 1-14. 251
- 64g Gray Bros., Syracuse, N. Y.—Ladies' and misses' fine shoes. D 1-4. 251
- 65 Simonds, N. J., Woburn, Mass.—Bevel and moulded heel stiffenings from leather and leather boards. D 2-6. 251
- 66 Walker, J. H. & G. M., Worcester, Mass.—Boots. D 1-8. 251
- 67 Hamilton Web Co., Wickford, R. I.—Boot and gaiter webs. D 1-3. 251
- 68 Lilly, Young, Pratt, & Brackett, Boston, Mass.—Men's, boys', and youths' boots and shoes. D 1-3. 251
- 69 Connolly & Power, Boston, Mass.—Gentlemen's boots, shoes, and gaiters. D 2-6. 251
- 70 Haskell, B. C., & Dickerman, Boston, Mass.—Shoe findings, buckles, buttons, laces, button hooks, over gaiters, shoe trimmings, and tools. D 2-7. 251
- 70a Cushman, Ara, & Co., Auburn, Me.—Men's boots and shoes. D 2-7. 251
- 70b Henderson, C. M., Chicago, Ill.—Men's boots and shoes. D 2-4. 251
- 70c Krippendorf & Hart, Cincinnati, O.—Ladies', misses', and children's shoes. C 2-12. 251
- 70d American Novelty Shoe Co., Meadville, Pa.—Wooden shoes. D 2-4. 251
- 71 Jones, Frederick, & Co., Boston, Mass.—Boots and shoes. D 1-2. 251
- 72 Batcheller, E. & A. H., & Co., Boston, Mass.—Men's, boys', youths', women's, and misses' boots, shoes, and brogans. D 1-1. 251
- 72a De Waru, Laurens E., Philadelphia, Pa.—Boots and shoes showing the Gordian seam. D 1-3. 251
- 73 Henshaw, Ed., Boston, Mass.—Shoe findings, tools, store supplies, etc. D 2-7. 251
- 74 Aub, Hackenburg, & Co., Philadelphia, Pa.—Machine silk for leather work. D 1-5. 251
- 75 Jenkins, Lane & Sons, Boston, Mass.—Boots, shoes, and brogans. D 1-1. 251
- 76 Fogg, Houghton, & Coolidge, Boston, Mass.—Men's, boys', youths', women's, and children's boots and shoes. D 1-1. 251
- 77 Dane, J. F., Grinnell & Co., Boston, Mass.—Men's boots, brogans, etc. D 1-3. 251
- 78 Robbins & Kelloggs, Boston, Mass.—Women's, misses', and children's shoes. D 1-3. 251

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- 79 Emerson's, Thomas, Sons, Boston, Mass.—Men's, boys', and youths' shoes. Manufacturers of hand and machine fine sewed and nailed work; owners of the patent for the celebrated "Hersome Gaiter." D 1-1. 251
- 80 Sears & Warner, Boston, Mass.—Shoe manufacturers' goods, lastings, and serges. D 1-8. 251
- 81 Peckert, Charles D., & Co., Lynn, Mass.—Ladies' and misses' boots and shoes. D 1-7. 251
- 82 Ventilating Waterproof Shoe Co., Lynn, Mass.—Ladies' and misses' boots. D 1-7. 251
- 83 The Moulded Heel Stiffening Co., Lynn, Mass.—Moulded rubber counters for boots and shoes. D 1-7. 251
- 83a Wood, W. D., & Co., Haverhill, Mass.—Boot and shoe trimmings. D 1-6. 251
- 83b Emerson, R. W., & Co., Boston, Mass.—Women's, misses', and children's pegged boots and shoes. D 1-1. 251
- 83c Mawhinney, H. H., & Co., Boston, Mass.—Boots and shoes. D 1-4. 251
- 83d Shaw, John, 2d, & Bro., Lynn, Mass.—Women's boots and shoes. D 1-7. 251
- 84 Tebbetts, Charles B., Lynn, Mass.—Ladies' and gents' boots, shoes, slippers, and fancy ties. D 1-7. 251
- 85 Woolledge, A. M., Lynn, Mass.—Ladies' shoes. D 1-7. 251
- 86 Bancroft, E. F., & Co., Lynn, Mass.—Ladies' and misses' boots and shoes, and ladies' and gents' fancy and plain slippers. D 1-7. 251
- 87 Mower & Bro., Lynn, Mass.—Ladies' and misses' boots and buskins. D 1-7. 251
- 88 Sweetzer, C. S., & Co., Lynn, Mass.—Ladies' and misses' boots. D 1-7. 251
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- 90 Breed, F. W., Lynn, Mass.—Ladies' boots and shoes. D 1-7. 251
- 91 Breed, A. F., Lynn, Mass.—Men's, ladies', and misses' boots and shoes. D 1-7. 251
- 92 Coffin, C. A., & Co., Lynn, Mass.—Men's boots and shoes. D 1-7. 251
- 93 Mudge, W. R., Lynn, Mass.—Leather, straw, and pattern boards, paper soles, stiffenings, etc. D 1-6. 251
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- 95c Dawley & Derby, New York, N.Y.—Shoe lasts, boot trees, crimps, clamps, toe stretchers. D 2-4. 251
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- 96 Mower, F. B., Lynn, Mass.—Ladies', misses', and children's boots. D 1-7. 251
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- 98e Justh, E. L., Washington, D. C.—Improved shoes. C 1-15. 251
- 99 Goodrich & Whitehouse, Haverhill, Mass.—Misses', children's, and infants' boots and shoes. D 1-6. 251
- 100 Goodrich & Porter, Haverhill, Mass.—Ladies' and misses' boots and shoes. D 1-5. 251
- 101 How, George C., Haverhill, Mass.—Kid slippers and ties. D 1-6. 251
- 102 Gardner Bros., Haverhill, Mass.—Ladies' and misses' boots and shoes. D 1-5. 251
- 103 Farrar, John B., Haverhill, Mass.—Gents' boots and opera and low-cut shoes. D 1-6. 251
- 104 Johnson, L., & Co., Haverhill, Mass.—Ladies' and gentlemen's shoes and slippers. D 1-6. 251
- 105 Nichols, George H., & Co., Haverhill, Mass.—Men's boots and shoes. D 1-6. 251
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- 106a Parker, Charles F., & Co., Boston, Mass.—Boots and shoes. D 1-4. 251
- 106b Dohle, Henry, Omaha, Neb.—Boots and shoes. D 2-3. 251
- 106c American Wooden Shoe Co., Chicago, Ill.—Wooden shoes and slippers. 251
- 106d Estabrook, Wires, & Co., Milford, Mass.—Climbing screws for boots and shoes. E 1-14. 251
- 106e Foster & Quiggle, Milford, Mass.—Shoes made with Estabrook's climbing screws. E 1-14. 251

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- 107 Simon, Edward, & Bro., New York, N. Y.—Trunks, bags, bag frames and trimmings, and fancy brass goods. G 2. 255

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- 108 Lagowitz, J., & Co., New York, N. Y.—Trunks, traveling bags, and satchels. G 2. 255
- 109 Hacker, J. C., & Co., New York, N. Y.—Pocket books, bill books, card and cigar cases, etc. G 2. 255
- 110 Lambert, P. W., & Co., New York, N. Y.—Pocket books, belts, toys, and Russia leather goods. C 1-16. 255
- 111 Gillmore, J. C., & Co., New York, N. Y.—Fine trunks, traveling cases and bags. G 1. 255
- 112 Thorne, John W., New York, N. Y.—Saratoga trunk and trunk clasp. G 1. 255
- 112a Peddie, T. B., & Co., Newark, N. J.—Trunks, valises, traveling bags, and ladies' satchels. G 2. 255
- 112b Roemer, William, Newark, N. J.—Trunks, bags, and shawl straps. G 1. 255
- 112c Rowen, John, Philadelphia, Pa.—Trunks, satchels, and pocketbooks. G 1. 255
- 112d Doughty, S. H., New York, N. Y.—Ladies' belts. D 1-5. 255
- 113 Crouch & Fitzgerald, New York, N. Y.—Trunks, valises, shawl straps, and leather goods. G 2. 255
- 115 Simpson, J. F., Philadelphia, Pa.—Trunk closer, lock, strap, and socket. G 1. 255
- 116 Watt, F. H., Philadelphia, Pa.—Trunks, traveling bags, and fancy leather goods. G 2. 255
- 117 Unruh, John, & Sons, Philadelphia, Pa.—Leather trunks and valises. G 1. 255
- 118 Waas, H. A., Philadelphia, Pa.—Trunk. G 1. 255
- 119 Palmer, Lt. George H., Nashville, Tenn.—Army, sportsmen's, travelers', and miners' equipments, adopted by the United States Army. Part proprietorship in foreign patents for sale. Foreign orders solicited. G 1. 255

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- 120 Albright, Andrew, Newark, N. J.—Hard rubber-coated harness and carriage trimmings. D 2-2. 284
- 121 Celluloid Harness Trimming Co., Newark, N. J.—Celluloid martingale rings and harness mountings. D 2-1. 284
- 121a Osborn, H. F., Newark, N. J.—Saddlers' and harness-makers' tools and machinery. D 2-2. 284
- 122 Kuenhold, F. B., Newark, N. J.—Saddlery and coach hardware. D 2-2. 284
- 123 Crane & Co., Newark, N. J.—Flexible rubber bits, wrought hand-forged bits. D 2-2. 284
- 124 Theiberath, Charles M., & Bro., 10 and 12 Ward street, Newark, N. J.—Manufacturers of gold, silver, nickel-plated and leather covered harness mountings. D 2-3. 284
- 125 Manning, Robert, Newark, N. J.—Winkers and winker plates. D 2-1. 284

- 126 Buerman, August, Newark, N. J.—Saddlery and harness hardware, bits, spurs, etc. D 2-1. 284
- 127 Wiener & Co., Newark, N. J.—Saddlery, hardware, and trimmings. D 2-1. 284
- 128 Tompkins, Samuel E., & Co., Newark, N. J.—Tompkins' patent gig trees; coach pads and gig saddles; hames, bits, etc.; coach and saddlery hardware in silver, gold, or nickel. D 2-1. 284
- 129 Waldron, J. V., & Bro., New York, N. Y.—Crests, coats of arms, monograms, bits, bosses, rosettes, etc., for harness. D 2-1. 284
- 130 Reynolds, Samuel, & Co., Pittsburg, Pa.—Fine XC plate, silver plate, gold and jappaned post bits, snaffle, ring bits and stirrups, iron gig and coach hames, all styles buckles, rings, loops, etc.; malleable iron castings for agricultural machinery. D 2-2. 284
- 131 Jenks, A. S., Philadelphia, Pa.—Driving bits. D 2-3. 284
- 131a Whelen, Richard P., New York, N. Y.—Bridle bits. D 2-3. 284

Fabrics of Vegetable, Animal, or Mineral Materials.

- 132 Davidson Rubber Co., 30 Franklin street, Boston, Mass.—Rubber goods, used in druggist, surgical, stationery, and fine rubber work. We use nothing but the finest stock, and make superiority in finish and quality our aim. C 2-8. 285
- 133 Gossamer Rubber Co., Boston, Mass.—Gossamer water-proof cloaks, coats, and overcoats, hats, caps, and umbrellas. C 2-11. 285
- 134 Taylor, W. B. S., 365 Broadway, New York, N. Y.—Gas tight flexible tubing, for portable light and gas stoves, and gas-proof cloth for gasometers. C 2-9 and 10. 285
- 135 Goodyear Rubber Co., New York, N. Y.—Rubber goods, enameled and table oil cloths. C 2-9 and 10. 285
- 136 National Rubber Co., Providence, R. I.—Rubber boots, shoes, clothing, cloths, stationers' and druggists' articles, mats, belting, hose, cushions, beds, pillows, etc. C 2-9 and 10. 285
- 137 New Brunswick Rubber Co., New Brunswick, N. J.—Rubber boots and shoes. C 2-11. 285
- 138 Vulcanized Fibre Co., Wilmington, Del.—Hard and flexible goods of vulcanized fibre. G 1. 285
- 139 Chadeayne & Christian, Yonkers, N. Y.—Rubber boots. G 1. 285
- 139a Star Rubber Co., Trenton, N. J.—India-rubber goods for mechanical purposes. G 1. 285

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- 140 Peters Calhoun Co., Newark, N. J.—Harness, saddles, and bridles. E 1-12. 296

Harness, Leather-Working Machinery.

- 142 Kessler & Bro., Philadelphia, Pa.—Wooden and plated hames. E 1-5. 296
- 142a Karr, Wm., Karsville, N. J.—Draft harness. E 1-1. 296
- 142b Crittenden, L. S., Cuba, N. Y.—Combination horse blanket and fly protector. E 1-12. 296
- 142c Hallett, Hervey H., Rockland, Mass.—Harness saddle. E 1-13. 296
- 142d Ries, Anton, Philadelphia, Pa.—Harness. E 1-4. 296
- 142e Taylor, Marshall B., Ludlow, Vt.—Whip lashes. E 1-5. 296
- 142f Hamly, Wm., Ripon, Wis.—Wire stitched horse collars. E 1-4. 296
- 142g Rosenthal, Henry, New York, N. Y.—Leather back horse brushes. F 1-1. 296
- 142h Heydecke, Wm., Newark, N. J.—Wood hames. E 1-13. 296
- 143 Haedrick, Henry G., & Sons, Philadelphia, Pa.—Harness and saddlery; preparation for polishing and dressing harness. E 1-10. 296
- 143a Burns & Degan, St. Louis, Mo.—Ventilated side saddle. E 1-11. 296
- 144 Moyer, E. P., & Bros., Philadelphia, Pa.—Harness, saddlery, and trunks. E 1-3. 296
- 145 Hansell, W. S., & Sons, Philadelphia, Pa.—Harness and saddlery, and horse clothing. E 1-4. 296
- 146 Lynch, Anthony, Philadelphia, Pa.—Gold-mounted double and single harness. E 1-10. 296
- 147 Sallada & Pearson, Philadelphia, Pa.—Ladies' and gentlemen's riding and driving whips. E 1-13. 296
- 148 McFadden, Patrick, Philadelphia, Pa.—Single harness and saddlery. F 1-1. 296
- 149 Yeager, Daniel A., Media, Pa.—Double and single harness, riding saddles and bridles. E 1-2. 296
- 150 Wilson, R. F., Milton, Pa.—Fly nets. E 1-4. 296
- 150a Wrigglesworth, W. J., Darlington, Wis.—Horse collar, collar, cap, and pad. E 1. 296
- 150b Phillips, Samuel R., Philadelphia, Pa.—Harness, saddles, whips, etc. E 1-2. 296
- 150c Golcher Bros., Philadelphia, Pa.—Bridle winkers. F 1-1. 296
- 151 Weaver & Bardall, Western Penitentiary, Pittsburg, Pa.—Leather whips. E 1-13. 296
- 152 Moseman, C. M., & Bro., New York, N. Y.—Single and double harness and saddlery. E 1-1 and 9. 296
- 153 Korne & Currie, New York, N. Y.—Single and double harness. E 1-5. 296
- 154 Moore, Thomas, New York, N. Y.—Plain and fancy horse collars. E 1-2. 296
- 155 Manheim, William, New York, N. Y.—Harness loops and back curtain loops. F 1-2. 296
- 156 American Whip Co., Westfield, Mass.—Driving and riding and leather whips and lashes. F 1-1. 296
- 157 Wilder, J. Lyman, Hartford, Conn.—Patent leather harness work, rosettes, etc. E 1-5. 296
- 158 Hill, James R., & Co., Concord, N. H.—Single and double harness and collars. "The Concord harness" is made in all styles and of every description, from the lightest, finest, and most elegant in use, to the heaviest and strongest required for any kind of work. Are remarkable for style, workmanship, strength, and durability. Correspondence solicited. Circulars furnished on application. E 1-1 and 9. 296
- 159 Gale, A. D., Pittsfield, Mass.—Double coach harness and paper trunk. E 1-6. 296
- 160 Motts, George, Washington, D. C.—Gold mounted buggy harness. E 1-4. 296
- 161 Lighthouse, J. C., Rochester, N. Y.—Horse collars and pads. E 1-5. 296
- 162 Stewart, John P., Rochester, N. Y.—Carriage and draft horse collars. E 1-13. 296
- 162a Spencer, Robert, Brooklyn, N. Y.—Saddle cloths. E 1-13. 296

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- 163 Pusey, Jones, & Co., Wilmington, Del.—Tanning apparatus and glazing machine for morocco factory. E 2-3 and 10. 532
- 163a Mitchell, J. E., Philadelphia, Pa.—Curriers' blocks, clearing and scouring stones. A 2-2. 532
- 163b Smith, Wm. M., Philadelphia, Pa.—Device for regulating sewing machines. E 2-2. 532
- 163c Stoddard & Fifield, North Brookfield, Mass.—Skiving machines. F 2-1. 532
- 163d Carl, Frederick, Somerville, Mass.—Model of stuffing mill for leather. E 2-9. 532
- 163e Lewis, Rufus E., New Hampton, N. H.—Machine for currying leather. F 2-3. 532
- 163f Bowser, J. C., Fort Wayne, Ind.—Stationary engine, boiler, and fixtures. E 2-1. 532
- 163g Newton, E. P., Gloversville, N. Y.—Glove, mitten, and leather cutting machines. F 2-4. 532
- 164 Walters, G. C., Philadelphia, Pa.—Wet-skin sewing machine. E 2-2 and 9. 532
- 166 Horn, W. H., & Bro., Philadelphia, Pa.—Tanners', curriers', and shoemakers' tools and machinery. D 2-3. 532
- 167 Osborne, C. S., & Co., 96 Mechanic street, Newark, N. J.—Saddlers' and harness makers' tools. Manufacturers of saddlers' and harness makers' tools of superior quality and finish. Established 1836. Send for catalogue. E 2-4 and 11. 532

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.

Leather-Working Machinery and Tools.

- 166 Knox, David, Lynn, Mass.—Pebling and polishing machine; sole-cutting machine. F 2-4. 532
- 168^a McLaughlin, Grover, & Lloyd, New York, N. Y.—Machine knives, leather, cloth, and paper dies or cutters. D 2-5. 532
- 168^b Sturtevant, Benjamin F., Boston, Mass.—Hot blast apparatus for tanneries and curriers' shops. F 2-1 and 2. 532
- 169 Coogan, Owen, Pittsfield, Mass.—Boarding and graining machine. E 2-9. 532
- 170 Reed, Harvey, Vineland, N. J.—Combination tannery. F 2-5. 532
- 171 Lockwood, Frederick A., Fall River, Mass.—Automatic leather-scouring machine. E 2-12. 532
- 172 Baker, George W., Wilmington, Del.—Skin-sewing machine. E 2-9 and 2. 532
- 173 Fisk, Joseph E., Salem, Mass.—Leather-whitening and buffing machine. E 2-10. 532
- 174 Lampert, Henry, Rochester, N. Y.—Round beam hide worker. E 2-9. 532
- 175 Rosensteel, W. H., Johnstown, Pa.—Model of leather-dressing machine. F 2-5. 532
- 176 Thompson & Nowell, Boston, Mass.—New patent bark-cutting and roasting machine. Tanners are respectfully invited to examine the machine and obtain circulars of information. E 2-3. 532
- 177 Swain, Fuller, & Co., Lynn, Mass.—Beating-out, moulding, and buffing machines. E 1-6 and 14. 532
- 178 Plummer, W. E., Boston, Mass.—Leather, buffing, whitening, and skiving machine; rotary tan press; round leach for leaching bark. E 2-5 and 11. 532
- 179 Gibson, F. N., New Ipswich, N. H.—Raising, creasing, and waving machine for harness makers, etc. F 2-6. 532
- 178^a Harkinson, Robert, Philadelphia, Pa.—Hooks for tanners' use. A 2-3. 532
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- 180 Tapley Heel Burnishing Machine Association, Boston, Mass.—Heel-burnishing machine. E 1-7 and 15. 533
- 180^a Stowe, A. F., Worcester, Mass.—Splitting, rolling, boot shaping, and side welt machines. F 2-1. 533
- 180^b Morse, Eddy, & Co., Boston, Mass.—Wax thread, tripp sewing, burnishing, leveling, and sole cutting machines. F 2-1. 533
- 180^c Union Edge Setter Co., Lynn, Mass.—Edge burnisher for boots. E 1-15. 533
- 180^d Hall, M. H., Philadelphia, Pa.—Cutting machine for boots and shoes. F 2-4. 533
- 180^e Domestic Sewing Machine Co., New York, N. Y.—Boot and shoe sewing machines. E 2-9. 533
- 181 Tubular Rivet Co., Boston, Mass.—Rivets for boots, shoes, harness, belting, etc. F 2-6. 533
- 182 American Shoe Tip Co., Boston, Mass.—Boots and shoes with wire-quilted soles and toe protection. F 2-7. 553
- 183 Roney, James B., Philadelphia, Pa.—Shoe trimming and edge setting machine. E 1-10 and 14. 533
- 184 Howe Machine Co., Bridgeport, Conn.—Boot and shoe sewing machines. F 2-3. 533
- 185 Buzzell, J. G., & Co., Lynn, Mass.—Buffing and heel securing machines. F 2-3 and 6. 533
- 186 Carver Cotton Gin Co., East Bridge-water, Mass.—Leveling, counter skiver, and welt cutter, and shank machines. F 2-5. 533
- 187 McKay Sewing Machine Association, Boston, Mass.—Shoe sewing and riveting machines and out-sole tacker. The McKay Sewing Machine is in use for sewing soles to boots and shoes; will sew nine hundred pairs per day; thirty-five million pairs are annually sewed on it in the United States. The riveting machines are for riveting soles to boots and shoes. The rivets are corrugated, automatically cut to the proper length, and firmly clinched on the insole. Three hundred pairs per day can be riveted, either in a channel or on the surface. The outsole tackers are for laying out soles. The nails clinch, are thoroughly buried in the insole, and always hold the sole. E 1-15. 533
- 188 May, Withey, & Drake, Lynn, Mass.—Shoe drying machine. F 2-6. 533
- 189 Stimpson, Edwin B., New York, N. Y.—Shoe machinery. E 1-6 and 14. 533
- 190 Hanan & Dewees, New York, N. Y.—Cutting dies and punches, shoe patterns, and lasts. D 2-7. 533
- 191 Hautin Sewing Machine Co., New York, N. Y.—Shoe sewing machine. E 2-11. 533
- 191^a Saurbier, H., & Sons, Newark, N. J.—Saddlers', tanners', and shoemakers' tools. F 1-2. 533
- 191^b Barnett, G. & H., Philadelphia, Pa.—Shoe rasps and files. D 2-2. 533
- 191^c American Cable Screw Wire Co., Boston, Mass.—Screw, cable screw wire, and tacking machines. E 2-10. 533
- 191^d Sturtevant, B. F., Boston, Mass.—Steam blowers and peg machine. F 2-1-2. 533
- 191^e Whittemore, D., Boston, Mass.—Shoe and harness machines. F 1-5, 6, and 7. 533
- 191^f Heaton, David, Providence, R. I.—Button fastener. E 2-3. 533
- 192 S. W. Jamison Boot & Shoe Crimping Machine Co., New York, N. Y.—Steam boot and shoe crimping machine. E 2-6 and 13. 533
- 192^a Wheeler & Wilson Manufacturing Co., Bridgeport, Conn.—Shoe sewing machines. E 2-4 and 11. 533
- 192^b Smith, W. M., Philadelphia, Pa.—Device for driving sewing machines. E 2-2. 533
- 192^c Stephens, W. A., Philadelphia, Pa.—Sole screwing machine. E 2-13. 533

Leather-Working Machinery and Tools, Leather.

- 192^d Kafer & De Lacy, Trenton, N. J.—Steam burnishing iron heater. E 2-7. 533
- 193 Goodyear & McKay Sewing Machine Association, Boston, Mass.—Shoe sewing machines. E 1-8 and 16. 533
- 194 Graves, L. S., Rochester, N. Y.—Machines for stripping, splitting, rolling and moulding, and heel pressing. E 2-7 and 14. 533
- 196 Cutlan Shoe Sewing Machine Co., Philadelphia, Pa.—Turned shoe sewing machine, channeler and edge turner. F 1-8. 533
- 197 Redifer, S. S., Philadelphia, Pa.—Shoe lasts, patterns for dies. D 2-5. 533
- 198 Miller, Thomas L., Philadelphia, Pa.—Beveling, channeling, moulding, and sewing machines for shoes. F 1-8. 533
- 200 Cushman, C. S., Philadelphia, Pa.—Leather and shoe stitching attachment. E 1-12. 533
- 201 Evans, Thomas R., Philadelphia, Pa.—Boot and shoe tree, lengthener, stretcher, and lasts. D 2-5. 533
- 202 Smith, J. Barton, & Co., Philadelphia, Pa.—Rasps and files for shoemakers and manufacturers. E 2-13. 533
- 203 Graf, Leopold, Newark, N. J.—Shoe burnishing and polishing machine. F 2-4. 533
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- 203^b Tingley, John, Philadelphia, Pa.—Rotating detachable shoe heel, and machine for attaching. D 1-5. 533
- 214 Leas & McVitty, Philadelphia, Pa.—Oak sole leather. A 2-6. 652
- 215 Keen & Coates, Philadelphia, Pa.—Oak-tanned sole leather for finest boot and shoe work. A 2-7. 652
- 216 Williams', Chas. B., Sons, Philadelphia, Pa.—Oak-tanned slaughter sole leather. A 2-6. 652
- 217 Horton, Crary, & Co., Sheffield, Pa.—Hemlock sole leather. A 1-5. 652
- 218 Shriver, A. K., & Sons, Union Mills, Md.—Oak sole leather. A 1-5. 652
- 219 Sommerville, Jas. N., Bellefonte, Pa.—Oak sole and belt leather. A 1-6. 652
- 220 Downing & Price, Wilmington, Del.—Oak sole and belt leather. A 1-6. 652
- 221 DeLong Bros., Philadelphia, Pa.—Oak rough slaughter leather. A 2-7. 652
- 222 Spanogle & Pennabaker, Philadelphia, Pa.—Oak sole leather. A 2-6. 652
- 223 Hibernia Tannery, Blaine, Pa.—Buenos Ayres sole leather. A 2-5 and 6. 652
- 224 Hench, Geo., Centre, Pa.—Oak sole leather. A 2-5 and 6. 652
- 225 Hench, A. L., Alum Banks, Pa.—Hemlock sole leather. A 2-5 and 6. 652
- 226 McNeal & Black, Man's Choice, Pa.—Slaughter sole. A 2-5 and 6. 652
- 227 Mapleton Tannery, Mapleton, Pa.—Texas sole. A 2-5 and 6. 652
- 228 Rife, Henry J., Philadelphia, Pa.—Sole and harness leather, and finished calfskins. A 2-5. 652
- 229 Forepaugh, W. F., & Bro., Philadelphia, Pa.—Oak-tanned whole hides. A 1-4. 652
- 230 Leas, Wm. B. Shirley, Tannery, Philadelphia, Pa.—Oak sole leather. A 1-4. 652
- 231 Hoffman, Jacob, Philadelphia, Pa.—Oak sole leather. A 2-5. 652
- 232 Rosensteel, W. H., Johnstown, Pa.—Union crop leather. A 1-7. 652
- 233 Hardenburgh, Hartwell, & Co., English Centre, Pa.—Sole leather. A 1-5. 652
- 234 Howard, J. W. & A. P., & Co., Corry, Pa.—Hemlock sole leather. A 1-5. 652
- 235 Greenawalt, J. & J. K., Harrisburg, Pa.—Oak sole, harness, wax upper, kip, and calf leather. A 2-6. 652
- 236 Wilkinson, J. P., & Bro., Unionville, Pa.—Oak sole and harness leather. A 2-7. 652
- 237 Underhill & Noble, Athens, Pa.—Hemlock sole leather. A 1-7. 652
- 238 Ray, Daniel P., Tyrone, Pa.—Union crop sole leather. A 2-7. 652
- 239 Webb, Wm. B., Frankford, Pa.—Leather aprons for worsted machinery, picker, band, and lace leather. A 2-7. 652

Animal and Vegetable Products.

- 204 Wedekind, Hallenburg, & Bro., Louisville, Ky.—Oak sole leather. B 2-3 and 10. 652
- 205 Trautwein, C., & Co., Louisville, Ky.—Chestnut oak sole leather. B 2-3 and 10. 652
- 206 Stoll, J. B., & Co., Louisville, Ky.—Oak skirting leather. B 2-3 to 10. 652
- 207 Ohio Falls Oak Leather Co., Louisville, Ky.—Oak harness, bridle, and belting leather. B 2-3 and 10. 652
- 208 Conrad, Fabel, & Mooney, Louisville, Ky.—Oak sole leather. B 2-3 to 10. 652
- 209 Schellberg, B. F., Germania P. O., Ala.—Rough leather. A 2-7. 652
- 210 Burt, F. H., & Son, Mannington, W. Va.—Oak sole leather. A 1-6. 652
- 211 Wisconsin Leather Co., Milwaukee, Wis.—Sole, upper, and harness leather. A 1-5, B 2-5. 652
- 212 Hidden, E. S., Milburn, N. J.—Leather boards for shanking insoles and counters by improved process; also, patent excelsior carriage washers from compressed leather fibre. A 2-1. 652
- 213 Hirkamp, J. G., Fredericksburg, Va.—Virginia sumac. A 2-3. 652
- 213^a Baer, A. P., & Co., Baltimore, Md.—Chestnut oak extract; quercitron and chestnut oak bark. A 1-5. 652

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.

Leather.

- 240** Bechtel, John A., & Son, Newport, Pa.—Oak sole leather. A 2-6. 652
241 Mosser & Keck, Allentown, Pa.—Union crop backs. A 2-7. 652
242 Genseman, Miller, & Co., Pinegrove, Pa.—Oak slaughter sole leather. A 2-7. 652
243 Rippman, C. A., Newport, Pa.—Slaughter sole and rough skirting leather. A 2-7. 652
244 Kerper, Henry, Reading, Pa.—Oak rough leather. A 2-7. 652
244a Spaulding, Edward, Boston, Mass.—Hemlock sole leather. A 1-5. 652
244b Chatfield, Underwood, & Co., New York, N. Y.—Oak sole and rough leather. A 2-4. 652
244c Thorne, McFarland, & Co., New York, N. Y.—Hemlock sole leather, from Thorndale, Laporte, and Torvanda tanneries. A 1-7. 652
244d Faust, Alvin, D., & Son, Upper Dublin, Pa.—Oak sole and rough leather. A 2-7. 652
244e Corbin, A., & Co., New Milford, Pa.—Hemlock sole leather. A 1-7. 652
245 Bare, John, Mt. Union, Pa.—Union crop sole leather. A 2-7. 652
246 Baer, Arthur P., & Co., hide & leather dealers, Nos. 7 & 9 Cheapside, Baltimore, Md., proprietors of Schlosser Tannery.—Slaughter oak sole leather. Vienna medal. A 1-4. 652
247 Deford & Co., First National & Battle Run Tanneries, Baltimore, Md.—Slaughter sole leather. A 2-4. 652
248 Appold, Geo., & Sons, Baltimore, Md.—Slaughter oak sole leather. A 2-4. 652
249 Jenkins, Staylor, & Co., Baltimore, Md.—Oak sole leather, from the Baltimore Star, Mt. Vernon, Swift-Run, and Prospect tanneries. A 2. 652
249a Halsey, Saml., & Son, Newark, N. J.—Patent and enameled leather. B 1-5. 652
249b Buck, C., Fleming, Pa.—Oak sole leather. A 2-7. 652
249c Maynard, Ely & Roso, Baltimore, Md.—Calf and kip skins. D 2. 652
249d Lapham, Smibert, & Co., Chicago, Ill.—Sole leather. A 1-6. 652
249e Robertson & Hoople, New York, N. Y.—Hemlock sole leather. A 1-7. 652
249f Frantz, D., & Son, Louisville, Ky.—Oak sole leather. A 2-3. 652
250 Decker, David, Wellsburg, N. Y.—Union back sole leather. A 2-4. 652
251 Palmer & Decker, Elmira, N. Y.—Union back sole leather. A 2-4. 652
252 Kinley, Adam, Breesport, N. Y.—Union crop sole leather. A 2-5. 652
252a Shultz, Southinck, & Co., New York, N. Y.—Hemlock and Union crop sole leather. A 1-8. 652
253 Osterhout, W. H., Ridgway, Pa.—Hemlock sole leather. A 1-8. 652
254 Wilcox Tanning Co., Wilcox, Pa.—Hemlock sole leather. A 1-8. 652
255 Innes, Adam, Granville Centre, Pa.—Union slaughter backs sole leather. A 2-8. 652
256 Innes, Adam, Grovers, Pa.—Crop sole leather. A 1-8. 652
257 Childs & Bloomer, Nicholson, Pa.—Slaughter crop sole leather. A 1-8. 652
258 McKinstry & Childs, Schultsville, Pa.—Slaughter crop leather. A 1-8. 652
259 Hoyt, J. B., & Co., New York, N. Y.—Oak-tanned leather belting. A 1-4. 652
260 Hoyt Bros., New York, N. Y.—Hemlock sole leather. A 2-3. 652
261 Brown, E. T., & Co., 89 Gold street, New York, N. Y.; Luzerne Tannery, James Davis & Co., Pittston, Pa.—Union crop sole leather; very solid, fair color. A 2-4. 652
262 Lee, W. Creighton, Salladaybush & Tloga Tanneries, New York, N. Y.—Hemlock sole leather. A 1-7. 652
263 Hubbard & North, Oswego, New York, N. Y.—Hemlock sole leather. A 1-6. 652
264 Wells, Henry F., Germania Tannery, Ludletown, N. Y.—California hemlock sole leather. A 1-6. 652
265 Kenyon, J. A., & Co., Trout Creek Tannery, Cannonville, N. Y.—Texas hemlock sole leather. A 1-6. 652
266 Bulkley, J. E., & Sons, New York, N. Y.—Hemlock sole leather. A 1-8. 652
267 Horton, G. B., & Co., New York, N. Y.—Hemlock sole leather. A 1-7. 652
268 Lapham, H. G., Tunkhannock Tannery, Tunkhannock, Pa.—Union back sole leather. A 2-4. 652
269 Rockwell Bros., Clarendon Tannery, Warren, Pa.—Hemlock sole leather. A 1-7. 652
270 Costello, P. & P., Camden Tannery, Camden, N. Y.—Hemlock sole leather. A 1-7. 652
271 Beach & Dodge, Harrisville, Lewis Co., N. Y.—Hemlock sole leather. A 2-7. 652
271a Prichett & Baugh, Philadelphia, Pa.—Oak sole leather from Strasburg, Path, and Franklin tanneries. A 2-3. 652
271b Kirkpatrick, Kinzey & Co., Philadelphia, Pa.—Union sole leather. A 2-4. 652
271c Howell, Joseph & Co., Philadelphia, Pa.—Oak sole leather. A 2-3. 652
271d Hersey, Washburn, & Co., Boston, Mass.—Hemlock sole leather. A 1-3. 652
271e Steinwand, Chas., Philadelphia, Pa.—Calf and kip skins. B 2-13. 652
272 Adams & Shaler, New York, N. Y.—Sole leather. A 1-8. 652
273 Thomas Extract Co., Elmira, N. Y.—Sole leather and belting leather, tanned with Thomas's clarified extract of hemlock bark exclusively, and with other tanning materials, in various percentages. A 2-5. 652

Leather.

- 274 Perry, F. H., & Co., Limestone, N. Y.—Hemlock sole leather. A 1-7. 652
- 275 Lampert, Henry, Rochester, N. Y.—Sole and upper leather. E 2-9. 652
- 276 Devereaux, A., & Son, Deposit, N. Y.—Hemlock sole leather. A 1-5. 652
- 277 Spaulding, Edward, Boston, Mass.—Hemlock sole leather. A 1-5. 652
- 279 Proctor, Thos. E., Boston, Mass.—Hemlock sole leather, curried leather, and splits. A 1-5. 652
- 280 Fairbrother, H. L., & Co., Pawtucket, R. I.—Belting lace and hame string leather. A 1-4. 652
- 281 Jewett & Keating, Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 282 Williams, C. H., & G. L., Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 283 Rumsey, A., & Co., Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 284 Gardner, N. H., & Co., Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 285 Schoellkopf, J. F., & Son, Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 286 Rose, Adolf, Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 287 Bush & Howard, Buffalo, N. Y.—Hemlock sole leather. A 1-6. 652
- 288 Nepper, E. & D., Cincinnati, O.—Oak sole leather. A 2-5. 652
- 289 Elsas & Pritz, Cincinnati, O.—Oak sole leather. A 2-5. 652
- 290 Ballauf, Louis, Cincinnati, O.—Oak sole leather. A 2-5. 652
- 291 Steigler, A., & Co., Cincinnati, O.—Oak sole, harness, and skirting leather. B 2-11. 652
- 292 Kessler, Henry, Cincinnati, O.—Oak sole and harness leather. A 2-5. 652
- 293 Lang & Wanner, Cincinnati, O.—Oak sole and harness leather. A 2-5. 652
- 294 Bades, Louis C., Cincinnati, O.—Harness leather. B 2-4. 652
- 295 Lawrence, John H., Cincinnati, O.—Skirting, calf, seating, and bridle leather. B 2-11. 652
- 296 Martin & Riedle, Cincinnati, O.—Russet leather. B 2-11. 652
- 297 Freiberg, Henry, Cincinnati, O.—Harness leather. B 2-11. 652
- 298 Lappe & Hax, Pittsburg, Pa.—Oak butts and rough skirting leather. A 2-4. 652
- Harness, Kip, and Calf.**
- 299 Grotzinger, A. & J., Alleghany City, Pa.—Oak sole leather. A 2-4. 652
- 300 Alexander, E. H., Alleghany City, Pa.—Imitation French calf and kip skins. B 2-13. 652
- 300a Wunderlich, Reinhard, New Albany, Ind.—Harness leather. B 2-3-10. 652
- 300b Day, Theodore, New Albany, Ind.—Wax leather. B 2-8-10. 652
- 300c Schuman, John W., Louisville, Ky.—Oak harness leather. B 2-3-10. 652
- 300d Rockenback, H., New Albany, Ind.—Harness leather. B 2-3-10. 652
- 301 Woelfel, Fred'k, Alleghany City, Pa.—Harness leather. B 2-12. 652
- 301a Halsey, Samuel, & Son, Newark, N. J.—Patent and enameled leather. B 1-5. 652
- 301b Hahn, H., & Stumpf, East Newark, N. J.—Wax calfskins. B 2-11. 652
- 301c Wetslar, Albert, New York, N. Y.—Calf, kip, wax upper and split leather. B 2-5. 652
- 301d Steinmand, Charles, Philadelphia, Pa.—Calf and kip skins. B 2-13. 652
- 301e Straus, M., Newark, N. J.—Leather. B 2-9. 652
- 301f Baltimore Calfskin Association, Baltimore, Md.—Calfskins rough, finished, and in the hair. B 2-6. 652
- 301g Loeb & Bros., Philadelphia, Pa.—Waxed calfskins. B 2-11. 652
- 301h Maynard, Ely, & Rose, Baltimore, Md.—Finished calf and kip skins. B 2-11. 652
- 302 Kiefer, Stiefel, & Co., Alleghany City, Pa.—Harness leather. B 2-12. 652
- 303 Holstein, A., Alleghany City, Pa.—Harness leather. B 2-5. 652
- 304 Lappe & Hax, Alleghany City, Pa.—Harness leather. B 2-5. 652
- 305 Lappe, J. C., Alleghany City, Pa.—Harness leather. B 2-5. 652
- 306 Callery, Jas., & Co., Pittsburg, Pa.—Harness and saddlers' leather. B 2-5. 652
- 307 Braun, Frederick, Philadelphia, Pa.—Calf and kip skins. B 2-13. 652
- 308 Ludy, C., & Sons, Philadelphia, Pa.—Finished oak calfskins. B 2-11. 652
- 309 Wensley, Jas., Philadelphia, Pa.—Shoe uppers. B 2-13. 652
- 310 Schuman, F., & Son, Philadelphia, Pa.—Calf and kid leather. B 1-6. 652
- 311 Chambers, Edwin, West Chester, Pa.—Finished calfskins. B 2-6. 652
- 312 Mardorf, C., Freeport, Pa.—Harness, calf, veal kip, and upper leather. B 2-13. 652
- 313 Hollinger, Amos, Lancaster, Pa.—Oak harness leather. B 1-4. 652
- 314 New York Manufacturing Leather Co., New York, N. Y.—Leather cloth for upholstering and carriages. B 2-5. 652
- 315 Moffat, David, & Co., New York, N. Y.—Oak-tanned harness leather. B 2-7. 652
- 316 Michel, A. M., New York, N. Y.—Buff, grain, and calf skins; harness leather; boots and shoes. B 2-5. 652
- 317 Brown, Elijah T., & Co., 89 Gold street, New York, N. Y.—Cromwell's finished calfskins, sold in this market twenty years; have a high reputation in foreign markets. B 2-12. 652
- 318 Shattuck & Binger, New York, N. Y.—Tanned alligator skins, black and colored. B 2-12. 652

Leather.

- 319 Studwell, Sanger, & Co., New York, N. Y.**—Imitation goat, splits and buff; finished calf, russet and union backs. B 2-12 and A 2-6. 652
- 320 Haubner & Heller, New York, N. Y.**—Finished calf and kip skins. A 2-3. 652
- 321 Thomas Extract Co., Elmira, N. Y.**—All kinds of light leather tanned with Thomas's clarified extract of hemlock bark exclusively, and with other tanning materials in various percentages. Thomas's bark granulating mill. B 2-12. 652
- 322 Weed, J. B. & F. M., & Co., Binghamton, N. Y.**—Imitation goat, split, kip, and harness leather. B 2-12. 652
- 323 Miller, J. & J., & Co., Boston, Mass.**—Hemlock extract and leather tanned by same. B 2-2. 652
- 324 Osborne, F., jr., & Co., Boston, Mass.**—New Orleans kip leather, plain and buffed. B 2-2. 652
- 325 Butler, Dunn, & Co., Boston, Mass.**—Buff leather made from slaughter hides. B 2-1. 652
- 326 Thompson, B. F., & Co., Boston, Mass.**—Buff and split leather; also, imitations of goat, kid, and morocco insides, of grain leather. B 1-1. 652
- 326a Scofield & Stevenson, New York, N. Y.**—Calfskins, harness, wax upper, grain and welt leather. B 2-5. 652
- 326b Beiser, A. & J., New York, N. Y.**—Cordovan leather. A 2-2. 652
- 326c Karrer, Joseph & Aaron, Detroit, Mich.**—Calf and kip leather. B 2-12. 652
- 326d Herring, W. P., & Co., Gouverneur, N. Y.**—Rough hemlock calfskins. B 2-7. 652
- 326e Schaff, Wm., & Co., Louisville, Ky.**—Harness leather. B 2-3-10. 652
- 326f England & Bryan, Philadelphia, Pa.**—Finished shoes kirting, waxed upper and split leather. A 2-1. 652
- 327 Cummings, John, & Co., Boston, Mass.**—Imitation goat, polish grain, calf, split, and buff leather. B 2-2. 652
- 327a Stengel, George, Newark, N. J.**—Patent leather. B 1. 652
- 327b Spanogle, Samuel, Nashville, Pa.**—Rough kip and calf leather. B 2. 652
- 327c Barth, A., & Co., Louisville, Ky.**—Harness, skirting, and wax leather. B 2, 3-10. 652
- 327d Mooney, W. W. & J. E., Columbus, Ind.**—Sole, harness, skirting, and belt leather. B 2, 3-10. 652
- 328 Guild, Josiah F., Boston, Mass.**—Pebble grain, imitation goat, buff, and split leather. B 2-9. 652
- 329 Proctor, Thomas E., Boston, Mass.**—Curried leather and splits. B 2-8. 652
- 330 Way, John S., & Co., Bridgeport, Conn.**—Leather, buffalo robes. A 2-1. 652
- 331 Zipp, Philip C., Baltimore, Md.**—Calf, kip, and grain leather. B 2-6. 652
- 332 Appold, George, & Sons, Baltimore, Md.**—Chestnut, oak-tanned calf skins. B 2-4. 652
- 333 Sharp, Tudor, & Co., Baltimore, Md.**—Oak buff upper leather, and rough skirting. A 2-2. 652
- 334 Cunningham & Co., Nashville, Tenn.**—Oak harness and rough leather. B 2-1. 652
- 336 Wisconsin Leather Co., Milwaukee, Wis.**—Harness, wax upper, and split leather. B 2-5. 652
- 337 National Leather Co., Detroit, Mich.**—Whip, lace, and upper leather, calfskins and robes. A 2-2. 652
- 338 Weil, J., & Bros., Chicago, Ill.**—Upper, harness, kip, and calf leather. B 2-8. 652
- 339 Walker, Oakley, & Co., Chicago, Ill.**—Wax calf union tannage, imitation goat grains, wax upper, card leather. B 2-8. 652

Morocco and Sheep.

- 340 Foster, A. J., & Co., Boston, Mass.**—Grain leather, goat and sheep skins. B 2-14. 652
- 341 Ely, Henry G., & Co., New York, N. Y.**—Imitation goat pebbled leather, finished wax-split leather. B 2-14. 652
- 342 Rockwell, J. S., & Co., New York, N. Y.**—Sheep leather. Manufacturers of colored and russet linings; pebbled sheep in all colors; white and colored skivers for shoe manufacturers; hatters' skivers; trunk and bag leather and linings; bookbinders' and pocket-book makers' leather of every kind; suspender and organ leather; sumac and alum roans and skivers. This exhibit is entirely of sheep leather. B 1-16. 652
- 343 Guion, Geo. G., New York, N. Y.**—Morocco leather. B 1-7. 652
- 344 Howell, T. P., & Co., Newark, N. J.**—Harness, patent, Russia, and pocket-book leather, sheepskin mats, and roans. B 1-8. 652
- 345 Meyer, Richard, New Durham, N. J.**—Superior buck skins, for pianoforte, shoe, glove makers, and others. B 1-14. 652
- 346 Pusey, Scott, & Co., Wilmington, Del.**—Kid, straight-grain pebbled, and French morocco. B 2-7. 652
- 347 Jones, W., & Co., Wilmington, Del.**—Morocco leather. B 2-14. 652
- 348 Bush, Wm., & Co., Wilmington, Del.**—Morocco leather. B 1-8. 652
- 349 Larrabee, E., & Sons, Baltimore, Md.**—Colored roans and linings, buff splits and wax uppers. B 1-15. 652
- 350 Wentz & Clark, Philadelphia, Pa.**—Morocco leather. B 1-14. 652
- 351 Bockius, Geo., Philadelphia, Pa.**—Morocco leather. B 1-5, and G 1. 652
- 352 Wood, Geo., Philadelphia, Pa.**—Morocco and sheep leather. B 1-13. 652
- 353 Schollenberger, Wm., & Sons, Philadelphia, Pa.**—Calf, kid, sheep alum, and roan leather; satchels, pocket books, and fancy leather goods. B 1-12. 652
- 354 Amer, Wm., & Co., Philadelphia, Pa.**—Morocco leather. B 1-4. 652
- 355 O'Callaghan, Francis O., Philadelphia, Pa.**—Skivers and sheep skins. B 1-13. 652
- 356 Hummel, G. W., & Co., Philadelphia, Pa.**—Morocco leather. B 1-12. 652

Leather, Saddlery, Furs.

- 357 McNeely & Co., Philadelphia, Pa.—Morocco leather, sheepskins, and skivers. B 1-4. 652
- 358 Adams & Keen, Philadelphia, Pa.—Morocco and kid leather. B 1-14. 652
- 359 Bronx Wool & Leather Co., New York, N. Y.—Morocco and sheep leather. B 1-15. 652
- 360 Locher & Atkinson, Baltimore, Md.—Morocco. B 1-6. 652
- 361 Martin, A. B., & Co., Lynn, Mass.—Kid and goat morocco leather. B 1-6. 652
- 362 Block, A., & Co., Philadelphia, Pa.—Colored sheepskins. B 1-6. 652
- 363 Seavey, Foster, & Bowman, Philadelphia, Pa.—Machine silk twist. D 1-6. 652

GREAT BRITAIN.

West of Centre Aisle, Sect. C, Col. 3 to 4.

- 1 Brookes, W., & Sons, Walsall, England.—Saddlery. 296
- 2 Wilson, Walker, & Co., Leeds, England.—Colored skivers, calf, roans, moroccos, and kids, in every style of finish and for all purposes. 652
- 3 Edinburgh Western Tanning Co., Edinburgh, Scotland.—Hog skins for saddlery. 652
- 4 Hooper, Cleve, jr., London, Eng.—Colored skivers and basils, materials for tanning and making glue. 652
- 5 Hooper, C. W., & Sons, London, Eng.—Materials for tanning and making glue. 652
- 6 Angus, George, & Co., Liverpool, Eng.—Oak sole leather. (*In U. S. section.*) A 7-3. 652

GERMANY.

West of Centre Aisle, Sect. C, Col. 2 to 3.

- 1 Wolf, S., Mainz.—Shoes. 251
- 2 Spicharz, P. J., Offenbach.—Calf, glove, and French kid. 652
- 3 Simon, C., & Son, Kirm.—Colored and black moroccos, and calfskins. 652
- 4 Meyer, E., Berlin.—Colored glove kid. 652
- 5 Bruning, H. W., Neumunster.—Smooth and grained calf, kid and upper leather. 652
- 6 Schaller, G., Laher Baden.—Colored and black moroccos. 652
- 7 Kaumanus, F. H., Ehrenbreitstein, B. A.—Sole leather, rheinish oak slaughter sole. 652

RUSSIA.

West of Centre Aisle, Sect. C, Col. 1 to 3.

- 1 Bauerfeind, Adolphus, Warsaw.—Russian and calf leather. 652

- 2 Panisheff, John, Mournshkine, Government of Nijnii Novgorod, district of Makarief.—Sheepskins, dressed and hall dressed. 652
- 3 Alafooroff & Alexandroff, Kazan.—Russian leather. 652
- 4 Mikhailoff, Alexis, Moscow.—Furs, sable, ermine, Korsard fox, Siberian squirrel. 652
- 5 Grunwald, Morice, Riga.—Furs, and stuffed fur animals. 652
- 6 Komaroff, Nicetas, Moscow.—Sheep and lamb skins, dressed. 652
- 7 Solin Bros., Nijnii Novgorod.—Seal grease. 652
- 8 Ossipoff, Michael, Kieff.—Tallow. 652
- 9 Zinovieff, Alexander, St. Petersburg.—Boot legs and vamps. 652
- 10 Tembler, K., & Schwede, L., Warsaw.—Manufactured leather. 652
- 11 Tehernish, E., Shartash Village, Government of Perm, district of Ekaterinburg.—Manufactured leather. 652
- 12 Sorakin, Tihlon, Moscow.—Colt leather. 652
- 13 Sevebreunikoff, Simon, Mourashkin-agon, Nijnii Novgorod, district of Makarief.—Horse leather. 652
- 14 Savin, Theodore, Ostashkoff, Government of Tver.—Russian leather and blacked boot legs. 652
- 15 Rens, John, St. Petersburg.—Sole leather, boot legs, and vamps. 652
- 16 Pervoff, Stephen, Poshekhonze, Government of Faraslow.—Calf leather and boot legs. 652
- 17 Ostrom Bros., Uleaborg, Finland.—Sole leather. 652
- 18 Muller, Edward, St. Petersburg.—Boot legs and vamps. 652
- 19 Long, Frederick, St. Petersburg.—Calf leather, boot legs, and vamps. 652
- 20 Koorikoff, P., St. Petersburg.—Leather. 652
- 21 Hufner, Rudolph, St. Petersburg.—Boot and Russian leather. 652
- 22 Emelianoff, Alexander, St. Petersburg.—Boot legs. 652
- 23 Efnoff, ——— St. Petersburg.—Boot legs and vamps. 652
- 24 Company of the Wladimir Tannery, St. Petersburg.—Sole leather. 652
- 25 Broosnitzine, Nicolas, & Sons, St. Petersburg.—Sole and boot leather and boot legs. 652
- 26 Bensenson, John, St. Petersburg.—Boot legs. 652

For location of objects, indicated by letter and figure, see Notation, p. 105; ground plan, p. 103.

DESCRIPTION OF BUILDINGS AND SPECIAL EXHIBITS.

No. 1. MAIN BUILDING.

See Part I., page 23.

No. 2. MACHINERY HALL.

See Part III., page 9.

No. 3. STOKES & PARRISH MACHINE SHOP, etc.

Size, 112 feet by 60 feet.

STOKES & PARRISH, Philadelphia.

Constitutes a part of Annex No. 2 to Machinery Hall, and is intended to execute repairs and machine work for the exhibitors. It is located south of Machinery Hall.

No. 4. AMERICAN BOILER HOUSE.

Is situated south of Machinery Hall, near the Hydraulic Annex, and furnishes steam for the American Section.

No. 5. CORLISS BOILER HOUSE.

Architects, PETTIT & WILSON, Philadelphia.—Size, 40 feet by 80 feet.

CORLISS STEAM ENGINE COMPANY, Providence, R. I.

Is built of composite stone and wood, and furnishes steam for the Corliss engine in Machinery Hall from twenty vertical tubular boilers, aggregating 1400 horsepower. It is situated south of Machinery Hall.

No. 6. ENGLISH BOILER HOUSE.

Size, 24 feet by 71 feet.

A composite wood and stone building, furnishing steam to English and other foreign exhibitors in Machinery Hall, and situated to the south of it.

No. 7. SHOE AND LEATHER EXHIBITION BUILDING.

See Part III., page 105.

No. 8. CENTENNIAL BOARD OF FINANCE OFFICE.

Architect, H. J. SCHWARZMANN.—Size, 140 feet by 212 feet.

A one-story frame building, situated on the left hand side of the main entrance to the Exhibition grounds, and occupied by the Board of Finance for the transaction of daily business.

No. 9. U. S. CENTENNIAL COMMISSION OFFICE.

Architect, H. J. SCHWARZMANN.—Size, 192 feet by 140 feet.

Located on the right hand side of the main entrance to the Exhibition grounds. It is built of wood, one story high, and is used as a business office by the Centennial Commission.

No. 10. CENTENNIAL NATIONAL BANK.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 72 feet by 40 feet.

E. A. ROLLINS, President.

Situated at the northwest corner of the Main Exhibition Building, and east of the Centennial Commission Office. It is one story high, built of wood, and is the medium for transacting the financial affairs of the Exhibition.

No. 11. WEIMER'S MACHINE WORKS, LEBANON, PA.

This outdoor exhibit is located south of Machinery Hall, between the Shoe and Leather Building, and Stokes & Parrish Machine Shop, and consists of bells, car dumps, carts for coal, iron bars, and steel coil tuyere.

No. 12. BARTHOLDI'S FOUNTAIN.

See Part II., page 146.

Architect, BARTHOLDI, of Paris.—Size, basin, 26 feet in diameter; height, 30 feet, statue, 11 feet.

Situated in the Esplanade in front of the main entrance to the grounds.

No. 13. CATHOLIC TOTAL ABSTINENCE FOUNTAIN.

See Part II., page 146.

Architect, HERMAN KIRN, Philadelphia.

Situated at the junction of Fountain Avenue and the Avenue of the Republic, at the northwestern corner of Machinery Hall. In design it is a circular platform, with four arms projecting at right angles, terminating in four smaller circular platforms. From the centre of the large circle rises a marble rockwork sixteen feet high, with a diameter of eighteen feet at base, on which stands a statue of Moses smiting the rock. The water descends from numerous fissures into a basin forty feet in diameter. On each of the circular platforms is a drinking fountain, twelve feet in height and eight feet eight inches in diameter, surrounded with statues nine feet high, representing Father Mathew, Charles Carroll, Archbishop John Carroll, and Commodore John Barry. It has been erected by contributions made by the numerous societies forming the Catholic Total Abstinence Union of America.

No. 14. FULLER, WARREN, & CO.'S STOVE BUILDING.

Size, 60 feet by 45 feet.

FULLER, WARREN, & CO., New York city, Chicago, Ill., Cleveland, O., and Troy, N. Y.

Located at the east end of Machinery Hall, and facing the Fountain of the Catholic Total Abstinence Society. It contains samples of stoves, heaters, and ranges in operation; is built of wood, one story high, surmounted by a cupola.

No. 15. GILLENDER & SONS' GLASSWARE BUILDING.

Architect, JAMES H. WINDRIM.—Size, 60 feet by 90 feet.

GILLENDER & SONS, Philadelphia.

A one-story frame house, situated west of Machinery Hall, on the walk to the Fifty-second Street entrance, where glass in process of manufacture is shown.

No. 16. CAMP OF WEST POINT CADETS.

Located on the eastern slope of George's Hill, at the western end of Fountain Avenue. The tents accommodate 300 cadets, with officers and band.

No. 17. IRON PIPE.

ANDREW O'NEILL, Ansonia, Conn.

This is an outdoor exhibit, situated south of Machinery Hall, and consists of water and gas pipes, showing patent process of jointing.

No. 18. LIBERTY STOVE WORKS.

Architect, C. C. PHILLIPS.—Size, 45 feet by 34 feet.

CHARLES NOBLE & CO., Philadelphia.

A one-story frame building, located west of Machinery Hall, and south of the Catholic Total Abstinence Fountain, on Fountain Avenue; containing different varieties of heaters, stoves, and ranges manufactured by Noble & Co.

No. 19. SAWMILL ANNEX.

Size, 276 feet by 80 feet, and.

No. 20. BOILER HOUSE.

Architects, PETTIT & WILSON, Philadelphia.

Size, 48 feet by 30 feet.

UNITED STATES CENTENNIAL COMMISSIONERS.

Exhibit direct-acting steam saw machines and gang saws. Are on Fountain Avenue, west of Machinery Hall, and consist of a one-story frame open building, and a boiler house attached.

No. 21. RAILROAD ENGINE HOUSE.

This building is used for storing and repairing the engines of the Narrow-Gauge Railroad Company, and is located west of Machinery Hall.

No. 22. ST. CECILIAN ORGANS.

T. C. KNAUFF, Philadelphia, Pa.

This exhibit consists of miniature organs, and some clocks made in 1676, 1776, and 1876. The building is frame, one story high, and in design resembles an organ. It is situated south of Mineral Annex, No. 1, near eastern entrance to Main Building.

No. 23. AUTOMATIC RAILROAD.

Size, 20 feet by 150 feet.

CHARLES W. HUNT, New York.

Illustrations of the mode of unloading vessels by means of a railroad worked by a self-acting apparatus. Is situated west of Machinery Hall.

No. 24. MONUMENT—THE AMERICAN SOLDIER.

NEW ENGLAND CO., Hartford, Conn.

This is a colossal monument situated between the Main Building and Art Gallery, on Avenue of the Republic. It is made of Westerly granite, is 21 feet 6 inches high, weighs 30 tons, and is the largest statue of modern times.

No. 25. GUNPOWDER PILE DRIVER.

Size, 35 feet by 12 feet.

GUNPOWDER PILE-DRIVING CO., Philadelphia.

Is built in the open air to exhibit the operation of pile-driving by means of gunpowder. It is situated southwest of Machinery Hall, between it and the barrier.

No. 26. STARR'S IRON WORKS.

JESSE W. STARR & SON, Camden, N. J.

The space allotted to Messrs. Starr & Son is occupied with gas works, pipes, special castings, stop-valves, lamp-posts, and fire hydrants. It is located southwest of Machinery Hall, close to the barrier.

No. 27. WEST END RAILWAY OFFICE.

This is a two-story frame building, situated west of Machinery Hall and north of Railroad engine house, on line of narrow-gauge road, and designed for the transaction of the Company's business.

No. 28. PNEUMATIC TUBES.

A. BRISBANE.

These tubes are placed on a platform, showing the process of transmitting messages and packages by this method. The exhibit is situated west of the gas machine, near fence on Elm Avenue.

No. 29. EXHIBIT OF NEW ENGLAND GRANITE CO., HARTFORD, CONN.

Situated in front of Board of Finance office, and consists of a Corinthian monument, 46 feet high, crowned with the statue of Hope. A canopy, 40 feet high, surmounted by spire and cross, under canopy a figure indicative of Memory. A Gothic monument with four polished columns at corners of die; a model of statue representing soldier of 1776 (life size); an individual memorial crowned with cross; a Gothic column, surmounted by spire and turrets; a Scotch granite polished monument, 16 feet high, with circular dome terminating in a finial; an individual memorial; a small monument, terminating in an urn; and a rustic monument, with ivy-circled column surmounted with cross.

No. 30. PATENT RAILROAD CROSSING.

This exhibit is located on line of narrow-gauge road near Elm Avenue, and west of Machinery Hall. It is designed to keep dirt from accumulating between the rails and planks of crossing.

No. 31. NEVADA QUARTZ MILL.

Size, 60 feet by 43 feet.

STATE OF NEVADA.

Exhibits the process of manipulating ores and precious metals. It is a one-story frame building, situated south of Machinery Hall.

No. 32. STORE HOUSE.

A one-story brick building, 10 feet by 10, used for the storage of oil for the machinery department. It is between the Nevada quartz mill and the barrier.

No. 33. FRICTION DRUM.

I. S. MUNDY, Newark, N. J.

Situated west of gas machine, near Elm Avenue, and consists of an improved portable friction drum.

No. 34. U. S. HOISTING MACHINE.

STOKES & PARRISH.

This exhibit adjoins the machine shop of Stokes & Parrish, south of Machinery Hall, and consists of a derrick with engine and boiler attachment.

No. 35. CHILIAN AMALGAMATING MACHINERY.

COMMISSION FOR CHILI.

Contains working models of amalgamating machinery used in working ores, and has a boiler house with small cylinder boilers. Is situated west of Machinery Hall.

No. 36. CAMPBELL PRINTING PRESS BUILDING.

Architect, ALEXANDER B. BARY.—Size, 88 feet by 144 feet.

CAMPBELL PRINTING PRESS AND MANUFACTURING CO., Brooklyn, N. Y.

The various printing presses manufactured by this company are exhibited in operation; the power is furnished by a thirty (30) horse-power engine and boiler. Specimens of type printing from the date of the invention, and of sunlight printing, are shown, and a complete printing office, of the fashion of 1776, is also in operation.

No. 37. OLD LOCOMOTIVE AND CARS.

EXHIBITED BY PENNSYLVANIA RAILROAD CO.

This exhibit is situated on line of Narrow-Gauge Railroad, west of Machinery Hall, and consists of the engine "John Bull," with tender and two passenger cars, standing upon the rails and stone sleepers of the first piece of track laid for the Camden & Amboy Railroad, in 1831; also, the first iron prow used on ships in crossing the Atlantic Ocean.

No. 38. CAR HOUSE.

Size, 140 feet by 44 feet.

Situated west of Machinery Hall, on line of Narrow-Gauge Railroad; designed for the exhibition of cars.

No. 39. POLICE STATION.

This building is situated southwest of Glass Factory, and is used by the Centennial Guard for quarters, etc.

No. 40. AVERILL CHEMICAL PAINT CO.

Size, 36 feet by 42 feet.

Contains exhibits of the Averill Chemical Paint ready for use, and applied. The building is constructed on the Rogers patent, has no frame work, and is put together with bolts and iron tongues. It is west of the Liberty Stove Works, on Fountain Avenue.

No. 41. OFFICIAL CATALOGUE AND NEWSPAPER ADVERTISING OFFICE.

Size, 20 feet by 30 feet.

CENTENNIAL CATALOGUE COMPANY—S. M. PETTENGILL & Co., New York, Philadelphia, and Boston.

A one-story building, occupied jointly by the Centennial Catalogue Company, and S. M. Pettengill & Co., Newspaper Advertising Agents. Contains bound volumes and files of the principal newspapers of the country, specimen numbers of old newspapers, photographs of editors and publishers, etc. Situated south of the east end of Machinery Hall.

S. M. Pettengill & Co., established 1849, are agents for all the newspapers of the United States and Canada, which are received and filed at their spacious and conveniently located offices, 37 Park Row, New York; 701 Chestnut Street, Philadelphia; 10 State Street, Boston, and upon the Centennial grounds. They have built up a large business by faithful attention to the interests of their customers, for whom they save time, trouble, and expense. Their long experience and large facilities are put at the service of those who consult them respecting the best methods of advertising.

No. 42. STOKES & PARRISH BOILER HOUSE.

Size, 10 feet by 12 feet.

Contains a boiler and engines; situated east of the southern central entrance of the Main Building.

No. 43. EHRET'S WATER-PROOF ROOFING.

M. EHRET, JR., Philadelphia, Pa.

A circular pavilion, showing fire and water-proof roofing. It is located to the east of the central southern entrance of the Main Building.

No. 44. TOMBSTONES.

This exhibit is situated south of the Main Building, near central entrance, and consists of tombstones, inclosed by ornamental iron fence.

No. 45. TERRA-COTTA PIPES.

Exhibited by E. W. Rittenhouse & Bro., Baltimore, Md. Comprises drain pipes of different sizes, elbows, angles, etc. Southwest of Machinery Hall, and adjoining the Gas Machine.

No. 46. MINERAL ANNEX, 1 and 2.

An extension of the Main Building, to the east of its south central entrance. It contains the greater part of the American exhibits in Department I. (Mining and Metallurgy), which are catalogued in Part I., pages 47 to 60.

No. 47. FIRE-PROOF VENTILATED BUILDING.

Architect and Builder, ROBERT IRWEST.—Size, 13 feet by 13 feet.

This is a one-story building composed of hollow bricks, peculiar in construction. Located south of Main Building and Annex No. 2.

No. 48. HEWITT & BRENNAN'S SWINGS.

These swings are known as aerial chairs, and are operated by means of a treadle with foot-pressure, leaving the hand entirely free. They number six, and are situated on Agricultural Avenue, immediately south of the American Restaurant, and south of Main Building, where the exhibit is known as aerial chairs.

No. 49. ORNAMENTAL STONE WORK.

An exhibit of brown stone, representing a double entrance to dwelling, elaborately carved, with rough dressed trimmings. Located south of St. Cecilian Organ and Main Building Annex No. 1.

No. 51. UNITED STATES GOVERNMENT BUILDING.

See Part III., page 72.

No. 51½. BARTHOLDI ELECTRIC LIGHT.

Is situated immediately west of Cook, Son & Jenkins' Pavilion, on border of lake, and consists of arm of statue to be erected in New York harbor.

No. 52. UNITED STATES ARMY POST HOSPITAL.

See Part III., page 73.

No. 52½. HOWE MONUMENT.

This monument was erected by the Howe Machine Co., to the memory of Elias Howe, Jr., the first inventor of sewing machines in this country. It was designed by Mr. Ellis, and cast by Wood Bros., of Philadelphia, and is situated at the western end of the lake, opposite northern central entrance to Machinery Hall.

No. 53. UNITED STATES HOSPITAL TENT.

See Part III., page 72.

No. 53½. JERUSALEM BAZAAR.

Situated on south side of Fountain Avenue, and due north of Turkish Bazaar. Designed for sale of olive wood.

No. 54. UNITED STATES LABORATORY.

See Part III., page 73.

No. 54½. PHILADELPHIA "TIMES" PAVILION.

Architects, WILSON BROS. & Co., Philadelphia.—Size, 28 feet by 17 feet.

A. K. McCLURE, Editor.

The Centennial business office of the "Times," a daily paper, issued morning and evening, and printed on a Hoe perfecting press in Machinery Hall. It is a one-story frame building, located on Belmont Avenue, opposite and east of the lake.

No. 55. PENNSYLVANIA STATE BUILDING.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 97 feet by 55 feet.

A two-story frame building, with a tower, of Gothic style. It faces the lake, between Fountain Avenue and the Avenue of the Republic; contains reception-rooms and offices for the use of the State Commissioners and visitors.

No. 55½. HUNGARIAN WINE PAVILION.

Architect, H. J. SCHWARZMANN.

JACOB KOHN, Manager.

This structure is circular in form, situated on State Avenue, north of the Japanese and Mississippi buildings, and devoted to the sale of Hungarian wines exclusively.

No. 56. OHIO STATE BUILDING.

Architects, HEARD & SONS, Cleveland, O.—Size, 45 feet by 44 feet, and Annex, 60 feet by 40 feet.

A two-story stone pavilion, located at the junction of State and Belmont Avenues. It supplies accommodation for the State Commissioners.

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| <p>1 Hoffman, A. O., Thompson, Wm., and others, Springfield, O.—Springfield limestone, course No. 16. 102</p> <p>2 McNally, Wm. G., Cleveland, O.—Coat of arms of Ohio, carved from Berea stone. 102</p> <p>3 Berea Stone Co., Berea, O.—Berea sandstone, course Nos. 1 and 2. 102</p> <p>4 Hurst, J. R., Cleveland, O.—Independence sandstone, course No. 4. 102</p> <p>5 Ford, O. D., Cleveland, O.—Euclid sandstone, course No. 3. 102</p> <p>6 Halderman, L., & Son, Cleveland, O.—Amherst stone, course No. 5 and window No. 4. 102</p> <p>7 Wagner, John, Cleveland, O.—Independence sandstone, course No. 6. 102</p> <p>8 Amherst Stone Co., Cleveland, O.—Amherst stone, course No. 7. 102</p> <p>9 Black River Stone Co., Cleveland, O.—Stone from Grafton, Ohio, course No. 8 and window No. 10. 102</p> <p>10 Paul, John, & Co., Massillon, O.—White sandstone from Massillon, Ohio, course No. 9. 102</p> <p>11 Wilson & Hughes Stone Co., Cleveland, O.—Amherst stone, course No. 10 and window No. 9, and Independence stone, course No. 19. 102</p> <p>12 Clough Stone Co., Amherst, O.—Amherst stone, course No. 11, and one-half front entrance. 102</p> <p>13 Worthington & Sons, Amherst, O.—Amherst stone, course No. 12, and one-half front entrance. 102</p> <p>14 Ohio Stone Co., Cleveland, O.—Amherst stone, course No. 13. 102</p> | <p>15 McDermott, J., & Co., Cleveland, O.—Berea stone, course No. 14 and window No. 8. 102</p> <p>16 Coshocton Stone Co., Coshocton, O.—Sandstone, course No. 15 and window No. 2. 102</p> <p>17 Stitt, Price, & Co., Columbus, O.—Columbus limestone, course No. 16. 102</p> <p>18 Finnegan, M., Cincinnati, O.—Cincinnati stone, window No. 3. 102</p> <p>19 Finnegan, J. H., Cincinnati, O.—Cincinnati stone, course No. 18. 102</p> <p>20 Montgomery, R. M., Youngstown, O.—Sandstone, part of course No. 20. 102</p> <p>21 Caldwell & Tod, Youngstown, O.—Stone from Tod quarry, part of course No. 20. 102</p> <p>22 Byers & McIlhainy, Youngstown, O.—Stone from Youngstown, part of course No. 20. 102</p> <p>23 Mauser & Haid, Youngstown, O.—Stone from Youngstown, part of course No. 20. 102</p> <p>24 Hamilton, Homer, Youngstown, O.—Stone from Youngstown, part of course No. 20. 102</p> <p>25 Warthorst & Co., Massillon, O.—Stone from Massillon, course No. 21. 102</p> <p>26 Stocking, Z. S., Mansfield, O.—Red sandstone from Mansfield, two vestibule windows. 102</p> <p>27 Bosler, Marcus, Dayton, O.—Dayton limestone, part of gable end and three windows. 102</p> |
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| <p>28 Huffman, Wm., Dayton, O.—Dayton limestone, part of front gable and three windows. 102</p> <p>29 Diamond Glass Co., Ravenna, O.—Double-thick glass, from ground white sandstone, in windows. 214</p> <p>30 American Inlaid Wood Co., Cleveland, O.—Inlaid wood floor, ladies' parlor. 227</p> <p>31 Garry Iron Roofing Co., Cleveland, O.—Sections of corrugated iron roof. 227</p> <p>32 American Sheet & Boiler Plate</p> | <p>Co., Cleveland, O.—Section from roofing tile. 227</p> <p>33 House & Davidson, Cleveland, O.—Pair front doors. 227</p> <p>34 Champion Fence Co., Kenton, O.—Wrought and malleable iron fence and gate. 283</p> <p>35 Buringer Bros., Dayton, O.—Ohio coat of arms of galvanized iron, in gable. 291</p> <p>36 Heard & Sons, Cleveland, O.—Architectural design of building. 441</p> |
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No. 56½. CENTENNIAL POLICE STATION.

This building is situated immediately north of State Avenue and Hungarian Wine Pavilion, and is used as quarters, etc., of Centennial Guards.

No. 57. INDIANA STATE BUILDING.

Size, 50 feet by 42 feet.

A two-story frame building, on State Avenue, opposite the United States Government buildings, containing accommodations for the State Commissioners and for visitors from Indiana.

The exhibit consists of a chair made of one hundred different kinds of wood from one county. Specimens of block and coking and cannon coal; flag from natural bed of limestone; black walnut; model of Bailey gun, and a painting by Cox, of the Sierra Valley. The walls are occupied with panels, presenting in brief form the growth and industries of representative counties and cities. In the reading-room is a large map showing railroad system, with margin presenting agricultural and manufacturing statistics.

No. 57½. SPONGE FISHERS OF TURKEY.

This building contains an exhibit of sponge and fruit, situated on south side of Fountain Avenue, and north of Vermont State building and Turkish Café.

No. 58. ILLINOIS STATE BUILDING.

Architects, WHEELOCK & THOMAS.—Size, 60 feet by 40 feet.

Situated on State Avenue, north of the United States Government Buildings; the headquarters of the Illinois Commissioners.

No. 58½. BETHLEHEM BAZAAR.

Located on Fountain Avenue, adjoining Jerusalem Bazaar, and intended for sale of olive wood.

No. 59. WISCONSIN STATE BUILDING.

Size, 50 feet by 40 feet.

For the accommodation of the State Commissioners. Located on State Avenue, north of the United States Government Exhibition Buildings.

No. 59½. SCREW FOG-HORN AND BELL.

Situated at northwest corner of Belmont and State Avenues. Exhibit consists of one caloric engine, which pumps air for fog-horn; tank for air; and stationary engine.

No. 60. MICHIGAN STATE BUILDING.

Size, 48 feet by 53 feet.

On State Avenue; built of native woods and stone; interior with raised panel work; marble wainscoting; parquette floors, all highly finished. Contains reception, Commissioners', dressing, parcel, three reserve rooms, and ladies' parlor.

No. 61. NEW HAMPSHIRE STATE BUILDING.

Size, 30 feet by 40 feet; two projections, 9 feet by 15 feet each.

In the style of an Italian villa, two stories in height, and containing ten rooms, the roof protected by an awning and used for an outlook. This exhibit consists of views of White Mountains scenery, and home of General John Stark, the hero of Bennington.

No. 62. CONNECTICUT STATE BUILDING.

Architect, D. R. BROWN, from a design by DONALD G. MITCHELL.—Size, 30 feet by 40 feet.

This cottage is erected in the old Colonial style, somewhat modified, and is designed for the use of the citizens and exhibitors of the State of Connecticut. It is situated on State Avenue, not far distant from the United States Government Exhibition Buildings. Exhibit consists of the Royal Arms, which, before the revolution, hung above the Speaker's chair in the House of Representatives, at Hartford, painted in 1724. Rustic chess stand, ham, nutmegs, frames, etc., made from the wood of the Charter Oak. Ancient furniture, clock, tile, settee, etc., etc.

No. 63. MASSACHUSETTS STATE BUILDING.

Size, 85 feet by 56 feet.

Situated on State Avenue, opposite the New York State Building; is built of wood, two stories high, and contains offices and rooms for Commissioners and visitors.

No. 64. DELAWARE STATE BUILDING.

Size, 54 feet by 34 feet.

Built in the Swiss-Gothic style, from native woods of the State. It is occupied by the State Commissioners, the first floor being used for reception-rooms, while the second floor is devoted to business purposes. Is situated on State Avenue, north of the British Commission, opposite the New York State Commission.

No. 65. MARYLAND STATE BUILDING.

Size, 92 feet by 60 feet.

For the use of the State Commissioners and visitors. Situated on State Avenue, north of the British Government buildings, and is built of wood, two stories high. This exhibit consists of minerals, woods, building stone, specimens of art by pupils of Maryland Institute and School of Art and Design, portraits of Governors, three engines by Baltimore & Ohio Railroad, models of fish-house and hatching-house.

No. 67. JAPANESE DWELLING.

Architect, MATSUO-EHE, Tokio.—Size, 102 feet by 48 feet.

This building, usually called the Japanese Government Building, is intended as a dwelling-house for Japanese workmen. The wood and other articles that enter into its composition, and also the vases and flowers in the surrounding garden, were imported from Japan, and all the work has been done by Japanese artisans. It is situated south of the British buildings.

No. 68. WEST VIRGINIA STATE BUILDING.

Size, 115 feet by 40 feet.

Northwest of the Catholic Total Abstinence Fountain, built of wood, two stories high. Headquarters for State Commissioners and visitors from West Virginia. The exhibit consists of twenty pyramids of coal, mineral waters, ores, agricultural products, oils, tobacco, building stone, veneers, salt, glass, and a memorial shield made of seventy-eight varieties of wood, viz.:

Minerals, Ores, Stone, Mining Products.

- 1 Central Virginia Copper Mine, Virginia.—Copper ores, iron pyrites, and collection of minerals found on line of Chesapeake & Ohio Railroad. 100
- 2 Stack, I. I., Virginia.—Hematite ore. 100
- 3 Lancaster Furnace & Mining Co., Taylor county, West Va.—Carbonate of iron. 100
- 4 McCreery, W., Raleigh county, West Va.—Hematite ore. 100
- 5 Harvey, R. T., Putnam county, West Va.—Iron ore. 100
- 6 Dickinson, H., Pendleton county, West Va.—Hematite ore. 100
- 7 Miller, George, Pendleton county, West Va.—Hematite ores. 100
- 8 Boggs, J. C., Pendleton county, West Va.—Hematite ore. 100
- 9 Davis, Madam, Denesa, Pendleton county, West Va.—Hematite ores. 100
- 10 Garloe, A. E., Marion county, West Va.—Carbonate of iron. 100
- 11 Brown, T. L., Kanawha county, West Va.—Black band iron ore. 100
- 12 Hamilton, Jas., Jefferson county, West Va.—Barytes. 100
- 13 Melville, A. W., Jackson county, West Va.—Iron ore. 100
- 14 Bond, E., Harrison county, West Va.—Iron ore. 100
- 15 McMechen, S. A., Hardy county, West Va.—Iron ores. 100
- 16 Alexander, W. A., Greenbrier county, West Va.—Calc spar. 100
- 17 Lewis, F. & Co., Grant county, West Va.—Calc spar and iron ores. 100
- 18 Hill, Wm., Fayette county, West Va.—Iron ore. 100
- 19 Wilson, Lewis, Barbour county, West Va.—Carbonate of iron. 100
- 20 Stout, H. L., Phillippi, West Va.—Carbonate of iron. 100
- 21 Nickell, G. W., Greenbrier county, West Va. 100
 a Iron ore. 100
 b Coal. 100
- 22 Hovey, W. M., Kanawha county, West Va. 100
 a Iron ores. 100
 b Coals. 101
- 23 McLean, J. L., Putnam county, West Va. 100
 a Carbonate of iron. 100
 b Bituminous coal. 101
- 24 Great Western Mining & Manufacturing Co., Ky. 100
 a Iron ore. 100
 b Coal. 101
- 25 Boteler, A. R., Jefferson county, West Va. 100
 a Hematite ore. 100
 b Marble. 102
- 26 Ruffner, L., & Lewis, J. D., Kanawha county, West Va. 100
 a Black flint. 100
 b Building sandstone. 102
- 27 Armstrong, A., Taylor county, West Va. 100
 a Carbonate of iron. 100
 b Building sandstone. 102
- 28 Capon Iron Works, Hardy county, West Va. 100
 a Iron ores. 100
 b Limestone. 103
- 29 White, C. S., Hampshire county, West Va. 100
 a Iron ores. 100
 b White glass and sand. 104
- 30 Bloomery Iron Works, Hampshire county, West Va. 100
 a Iron ores. 100
 b Fire clay. 104
- 31 Shimp, Jas., Hardy county, West Va. 100
 a Iron ores. 100
 b Potters' clay. 104
- 32 Muenchmeyer, H. & L., Wood county, West Va. 100
 a Iron ore. 100
 b Potters' clay. 104
- 33 Cantley, R. K., Greenbrier county, Va. 100
 a Flint. 100
 b Semi-bituminous coal. 102
 c Limestone and silicious coral. 103
- 34 Kingwood Gas, Coal, & Iron Co., Preston county, West Va. 100
 a Carbonate of iron. 100
 b Coal. 101
 c Fire clay. 104
- 35 Clay, Cecil, Greenbrier county, West Va. 100
 a Iron ore. 100
 b Building sandstones. 102
 c Clay. 104
 d Mineral waters. 102
- 36 Elk River Iron & Coal Co., Braxton county, West Va. 100
 a Iron ore. 100
 b Limestone. 103
 c Sandstones for furnaces. 104
- 37 Mendenhall, U., Morgan county, West Va. 100
 a Hematite ore. 100
 b Limestone. 103
 c White glass sand. 104
- 38 Willey, W. T., Monongahela county, West Va. 100
 a Iron ores. 100
 b Coals. 101
 c Building sandstone. 102
 d Limestone. 103
 e Fire clay. 104
- 39 Peterkin, G. G., Greenbrier county, West Va. 100
 a Iron ores and black oxide of manganese. 100
 b Mineral waters. 107
- 40 Johnson, J. F., Pendleton county, West Va. 100
 a Hematite ores. 100
 b Mineral water. 107
- 41 Duhin, C., Wirt county, West Va.—Petroleum. 101
- 42 Volcano Oil & Coal Co., Wood county, West Va.—Bituminous coal. 102
- 43 Hale & Porter, Wirt county, West Va.—Petroleum. 101
- 44 Aspenwall & Low, Wayne county, West Va.—Cannel coal. 101
- 45 Ferguson, Wayne, Wayne county, West Va.—Bituminous and cannel coal. 102
- 46 Barnes, J. H., Taylor county, West Va.—Bituminous coal. 101
- 47 McGregor, Dr., Ritchie county, West Va.—Petroleum and Ritchie mineral. 101

- 46 Beckley, A., Raleigh county, West Va.—Bituminous coal. 101
- 49 Prince, G. H., Raleigh county, West Va.—Bituminous coal. 101
- 50 Raymond Coal Co., Putnam county, West Va.—Bituminous coal. 101
- 51 Austen Coal Co., Preston county, West Va.—Coal and coke. 101
- 52 Hill, M. L., Ohio county, West Va.—Bituminous coal. 102
- 53 Virginia Coal Co., Mineral county, West Va.—Semi-bituminous coal. 101
- 54 Hartford City Coal & Salt Co., Mason county, West Va.—Bituminous coal. 101
- 55 Gaston Coal Mines, Marion county, West Va.—Gas coal. 101
- 56 Aspinwall & Low, Lincoln county, West Va.—Coal. 101
- 57 Falling Rock Coal Co., Kanawha county, West Va.—Cannel coal. 101
- 58 Lewis, J. D., Kanawha county, West Va.—Coal. 101
- 59 Enterprise Coal Co., Kanawha county, West Va.—Splint coal. 101
- 60 Kanawha Semi-Cannel Coal Co., West Va.—Coal. 101
- 61 Mill Creek Cannel Coal Co., Kanawha county, West Va.—Cannel coal. 101
- 62 Lewiston Coal Co., Kanawha county, West Va.—Coal. 101
- 63 Monongahela Gas Coal Co., Harrison county, West Va.—Gas coal. 101
- 64 Despard Gas Coal Co., Harrison county, West Va.—Gas coal. 101
- 65 Murphy's Run Coal Mine, Harrison county, West Va.—Gas coal. 101
- 66 Letterman, W. H., Fayette county, West Va.—Bituminous coal. 101
- 67 Cole, B., Fayette county, West Va.—Bituminous coal. 101
- 68 Coal Valley Coal Co., Fayette county, West Va.—Gas coal. 101
- 69 Gauley, —, Kanawha Coal Co., Fayette county, West Va.—Coal and coke. 101
- 70 Longdale Coal & Iron Co., Fayette county, West Va.—Coal and coke. 101
- 71 Nuttallberg Coal Co., Fayette county, West Va.—Coal and coke. 101
- 72 Stanton Rock Coal Co., Brooke county, West Va.—Bituminous coal. 101
- 73 Brown, T. L., Boone county, West Va.—Cannel coal. 101
- 74 Peytona Cannel Coal Co., Boone county, West Va.—Cannel coal. 101
- 75 Ball, A., Boone county, West Va.—Cannel coal. 101
- 76 Corrathers, L., Taylor county, West Va.
a Cannel coal. 101
b Fire clay. 104
- 77 Radloff, R. S., Marion county, West Va.
a Bituminous coal. 101
b Limestone. 103
- 78 Hall, W. W., Pleasants county, West Va.
a Petroleum. 101
b Brine. 107
- 79 Boggs Run Mining Co., Ohio county, West Va.
a Bituminous coal. 101
b Building sandstone. 102
c Limestones. 103
- 80 Hudson, J. & D., Hancock county, West Va.
a Bituminous coal. 101
b Building sandstone. 102
c Limestone. 103
- 81 Browse, R. H., Pleasants county, West Va.—Building sandstone. 102
- 82 Waddle, J. & M., Ohio county, West Va.—Building sandstone. 102
- 83 Osborne, J., Monroe county, West Va.—Marble. 102
- 84 Camden, P. B., Lewis county, West Va.—Building sandstone. 102
- 85 Fall, R., Jefferson county, West Va.—White marble. 102
- 86 Strider, S. W., Jefferson county, West Va.—Black marble. 102
- 87 Strider, J. S., Jefferson county, West Va.—Black and white marble. 102
- 88 Withrow, Jas., Greenbrier county, West Va.—Marbles. 102
- 89 Miller, J. H., Fayette county, West Va.—Building sandstone. 102
- 90 Lanham, Gabriel, Taylor county, West Va.
a Building sandstone. 102
b Limestone. 103
- 91 Laidley, J. B., Cabell county, West Va.
a Building sandstone. 102
b Brine. 107
- 92 Lanham, Zadock, Taylor county, West Va.—Limestone. 103
- 93 Gwinn, M., Summers county, West Va.—Hydraulic limestone. 103
- 94 Lang, A. J., Ohio county, West Va.—Hydraulic limestone and cement. 103
- 95 Thompson, O. D., Ohio county, West Va.—Hydraulic limestone. 103
- 96 Wells, J., Ohio county, West Va.—Limestone. 103
- 97 Potomac Cement Mills, Jefferson county, West Va.—Hydraulic limestone and cement. 103
- 98 Mann, M., Greenbrier county, West Va.—Limestone. 103
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- 160 McCreery, W., Raleigh county, West Va.—Samples of timber. 600
- 161 Beckley, A., Raleigh county, West Va.—Cross sections of timber. 600
- 162 Prince, G. H., Raleigh county, West Va.—Woods. 600
- 163 Dall & Callaway, Putnam county, West Va.—Stakes and hoop poles. 600
- 164 Browae, R. H., Pleasants county, West Va.—Specimens of woods. 500
- 165 Banjoy, N. I., Pendleton county, West Va.—Laurel wreath and vine. 600
- 166 Hammer, B., Pendleton county, West Va.—Section of locust wood. 600
- 167 Hammer, Jacob, Pendleton county, West Va.—Sections of wild cherry and yellow pine. 600
- 168 Johnson, J. F., Pendleton county, West Va.—Sections of various woods. 600
- 169 Mearesall, W., Monongahela county, West Va.—Walnut board. 600
- 170 Fairchild, Lawhead, & Co., Monongahela county, West Va.—Woods used in wagon building. 600
- 171 Ruffner, L., & Lewis, J. D., Kanawha county, West Va.—Cross sections of twenty-one varieties of timber. 600
- 172 McKnight & Rohrer, Jefferson county, West Va.—Axe handles and feloes. 600
- 173 Clay, Cecil, Greenbrier county, West Va.—Specimens of woods. 600
- 174 Letterman, W. H., Fayette county, West Va.—Samples of woods. 600
- 175 Heald, D., Fayette county, West Va.—Molasses hoghead shook. 600
- 176 Guard, Jas., Fayette county, West Va.—White oak stave. 600
- 177 Abbott, J. M., Fayette county, West Va.—Holly. 600
- 178 Cassady, R. B., Fayette county, West Va.—Maple. 600
- 179 Miller, J. H., Fayette county, West Va.—Woods. 600
- 180 Sinsal, J. B., Fayette county, West Va.—Samples of ash. 600
- 181 Elk River Iron & Coal Co., Braxton county, West Va.—Charcoal. 600
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- 195 Green, R. H., Harrison county, West Va.—Wheat. 620
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- 220 Harris, T. M., Ritchie county, West Va.—Corn. 620
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- 222 Williams, J. S., Taylor county, West Va.—Corn and wheat. 620
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226 Dempsey, J. E., Fayette county, West Va.		236 Carter, W., Fayette county, West Va.—Tobacco.	623
<i>a</i> Wheat, corn, oats, and timothy.	620	237 Dempsey, J. A., Fayette county, West Va.—Tobacco.	623
<i>b</i> Tobacco.	623	238 Ballard, G. W., Lewis county, West Va.—Tobacco.	623
227 Harvey, William T., Fayette county, West Va.		239 Johnson, D. D., Taylor county, West Va.—Tobacco.	623
<i>a</i> Rye, wheat, and corn.	620	240 Staley, T. J., Tyler county, West Va.—Tobacco.	623
<i>b</i> Tobacco.	623	241 Seamon, H., Wheeling, West Va. —Tobacco and cigars.	623
228 Hashbarger, A. P., Fayette county, West Va.			
<i>a</i> Oats.	620		
<i>b</i> Tobacco.	623		
229 Sinclair, G. W., Taylor county, West Va.—Beans.	621		
230 Keesey, I. B., Fayette county, West Va.—Laurel root.	622		
231 O'Neal, Cheuvront, & Co., Dod- dridge county, West Va.—Tobacco.	623		
232 Crager, Joe, Fayette county, West Va.—Tobacco.	623		
233 Cassidy, R. B., Fayette county, West Va.—Tobacco.	623		
234 Nugen, J., Fayette county, West Va.—Tobacco.	623		
235 Braughan, J. J., Fayette county, West Va.—Tobacco.	623		
		Animal and Vegetable Products.	
		242 Oachbacher, John, & Son, Wood county, West Va.—Grape wine.	660
		243 Muenchmeyer, H. & L., Wood county, West Va.—Grape wine.	660
		Textile Substances of Vegetable or Animal Origin.	
		244 Browae, R. H., Pleasants county, West Va.—Flax.	666
		245 Settle, J. G., Fayette county, West Va.—Flax.	666

No. 69. CANADIAN LOG HOUSE.

Size, 75 feet by 56 feet.

CANADIAN COMMISSION.

See Part IV., page 134.

Is one story high, constructed of logs, and located close by the British Government buildings. It constitutes an exhibit of the timbers of Canada.

No. 70. MISSOURI STATE BUILDING.

Architect, L. C. MILLER, St. Louis.—Size, 58 feet by 48 feet, with tower.

Location, State Avenue, George's Hill. Headquarters of Board of State Centennial Managers, organized by State Legislature; President, Thomas Allen; Secretary, J. L. Tracy. Exhibits in Main Hall, Education Department, Mineral Annex, Agricultural Hall.

Nos. 71, 72, 73. BRITISH GOVERNMENT BUILDINGS.

Architect, THOMAS HARRIS, of London.—Size, No. 1, 5000 sup. feet; No. 2, 1200 sup. feet.

These edifices have been erected for the use of the members of the Royal Commission. The large one is the residence of the Commissioners and delegates, while the smaller furnishes accommodations for the members of the staff. They are built in a picturesque, half-timbered style, essentially English, and are located north of Machinery Hall. A bake-house and laundry are also attached to the above.

No. 74. NEW YORK STATE BUILDING.

Architects, CROFF & CAMP.—Size, 60 feet by 34 feet.

The Commissioners of the State of New York have offices in this building. It is a two-story structure, surrounded by about half an acre of ground. It is situated on State Avenue, north of the British buildings.

No. 75. COLONEL LIENARD'S GEORAMA.

Designer, COL. LIENARD, Paris.—Size, area 1250 square feet.

An open-air exhibit, models of the cities of Paris and Jerusalem, in gypsum. The contour of the ground is shown, and the streets appear fully delineated. It is in the centre of Fountain Avenue, at the head of the lake.

No. 76. POP-CORN BUILDINGS.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 41 feet by 32 feet each.
J. A. BAKER, Dayton, Ohio.

One of these buildings is situated on Fountain Avenue opposite the northern extremity of the lake; the other is on Agricultural Avenue, east of and opposite the New England Farmers' Home and Modern Kitchen. They are devoted exclusively to the sale of pop-corn, and are built of wood, one story high.

No. 77. CIGAR STANDS.

The stands are located at various points north of the Avenue of the Republic, and west of Belmont Avenue.

No. 78. SODA WATER STANDS.

These stands are situated at various points north of the Avenue of the Republic, and west of Belmont Avenue.

No. 79. TUNISIAN CAFÉ AND BAZAAR.

A decorated pavilion with stained glass windows, designed for the display of Tunisian products. Situated on Fountain Avenue, north of Pennsylvania State building.

No. 80. CHRISTOPHER COLUMBUS MONUMENT.

Located at corner of Belmont and Fountain Avenues. It was erected by the Columbus Monument Association. It is of colossal size, and represents the Genoese navigator in a standing posture, with the right hand resting on a globe, and the left holding a chart; an anchor and rope indicating his occupation.

No. 81. DRINKING FOUNTAIN.

Size, 25 feet in diameter.

Erected by the SONS OF TEMPERANCE of Pennsylvania.

This fountain is built of wood, the structure inclosing it being circular in form, and it is situated at the junction of Fountain and Belmont Avenues. The Singer & Falcott drinking fountain is a marble fountain situated between the Bethlehem Bazaar and Tunisian Café.

No. 82. "TROIS FRÈRES PROVENÇAUX" RESTAURANT.

Architect, LEHMAN, of Paris.—Size, 177 feet by 110 feet.

LOUIS GOYARD, Proprietor.

A two-story frame structure, situated on the corner of Belmont and Fountain Avenues. It has large garden surroundings, and is a duplicate of the restaurant of the same name in Paris as regards its management.

No. 83. NEW YORK "TRIBUNE" BUILDING.

Architect, E. E. RATH.—Size, 30 feet by 21 feet.

NEW YORK TRIBUNE, New York.

A small octagonal wooden building, with verandas and a high tower-like roof. It is located close to the French Restaurant and the lake, and is used as an office for the correspondents and reporters of "The Tribune."

No. 84. WORLD'S TICKET OFFICE.

Architect, H. J. SCHWARZMANN.—Size, 60 feet square.

COOK, SON & JENKINS, London, New York, and Philadelphia.

Situated immediately north of the eastern end of Machinery Hall. It is hexagonal in form, and contains a main hall and four private offices. Tickets to all parts of the world are offered for sale, and ornamental articles manufactured in Palestine are exhibited.

No. 85. PRESSED FUEL COMPANY'S BUILDING.

Polygon, 24 feet in diameter.

E. F. LOISEAU, Philadelphia.

Constructed of iron and situated in a garden plot on the Avenue of the Republic, west of the lake and opposite to Machinery Hall. It exhibits the fuel in a state of combustion, to demonstrate its economy and adaptability.

No. 86. SPANISH GOVERNMENT BUILDING.

Decagonal, 50 feet in diameter.

A one-story frame building, situated on the Avenue of the Republic, west of the Catholic Total Abstinence Fountain. Intended as headquarters of the Spanish soldiers.

86 1/2. SPANISH EXHIBITION BUILDING.

Architect, ALEXANDER B. BARY.—Size, 80 feet by 100 feet.

Constructed of wood, in a style similar to Machinery Hall; adjacent to Spanish Engineers' Pavilion.

Educational Systems, Methods, and Libraries.

- 1 Goig & Co., Jaime, Alcira, Province of Valencia.—Books for primary instruction. 300
- 2 Rodriguez Mañanas, Pedro, Zamora.—Explanation of engravings and patterns for cutting garments. 300
- 3 Fábregas y Bru, José, Havana, Island of Cuba.—Writing desk. 300
- 4 Superior Normal School, Salamanca.—Programme for children's schools. 300
- 5 Illera y Marín, Manuel, Salamanca.—Rational programme for lectures in normal school. 300
- 6 Rodriguez Martin, Vicente, Sequeros, Province of Salamanca.—Lineal designs. 300
- 7 Sanchez, Pilar, Sevilla.—Objects for the instruction of children. 300
- 8 Board of Primary Instruction, Vitoria, Province of Alava.—Treatise on primary instruction. 300
- 9 Azpiasu, José Antonio de, Vitoria, Province of Alava.—Method of penmanship. 300
- 10 Solano y Viton, Pablo, Valencia.—Books for primary instruction. 300
- 11 Aguilar, Simon, Valencia.—Books for primary instruction. 300
- 12 Solis, Prudencio, Valencia.—Books for primary instruction. 300
- 13 Perales, Baltasar, Valencia.—Books for primary instruction. 300
- 14 Montells y Nadal, Jacinto, Sevilla.—Books for primary instruction. 300
- 15 Gazapo y Loma, Juan Manuel, Madrid.—Syllable book. 300
- 16 Collado, Cayetano, Madrid.—Intuitive instruction. 300
- 17 Borja y Alarcon, Pedro, Madrid.—Geographical stick. 300
- 18 Ladies' Seminary, Madrid.—Work by pupils, and writing by the professors. 300
- 19 Molinero, Enrique, Madrid.—Alphabets. 300
- 20 Gonzalez y Luna, Ildefonso, Jaen.—Specimen of penmanship. 300
- 21 Diaz y Martinez, Manuel, Jerez de la Frontera, Province of Cadiz.—Apparatus for primary instruction. 300
- 22 College of Messrs. Peffort, Barcelona.—Work done by pupils. 300
- 23 National Institute for the Deaf and Dumb, and Blind, Madrid.—Method of instruction. 303
- 24 Nebreda y Lopez, Carlos, Madrid.—Works for the instruction of the deaf and dumb, and blind. 302
- 25 Institute for the Deaf and Dumb, and Blind, Sevilla.—Documents of the college. 302
- 26 Campillo y Correa, Narciso, Madrid.—Rhetoric and poetry. 306
- 27 Cornellas y Grau, Clemente, Madrid.—French grammar, etc. 306
- 28 Escolapios of San Antonio, Madrid.—Books. 306
- 29 Garcia Ayuso, Francisco, Madrid.—Arabian grammar, study of philology, etc. 306
- 30 Garriga Marriell, Pedro, Madrid.—Tachigraphy. 306
- 31 Giol y Soldevilla, Isidro, Madrid.—Course of photography. 306
- 32 Galdo, Manuel Maria José de, Madrid.—Manual of natural history. 306
- 33 Institute of Secondary Instruction of San Isidro, Madrid.—Memoirs. 306
- 34 Martinez Cubells, Enrique, Madrid.—Lessons in geometry. 306
- 35 Montero Montero, Antonio, Madrid.—Programmes, catalogues, etc., of the polytechnic school. 306
- 36 Monreal y Ascaso, Bernardo, Madrid.—Course of geography, and history of Spain. 306
- 37 Moya, Ambrosio, Madrid.—Lessons in arithmetic. 306
- 38 National Library, Madrid.—Books published, and awarded works. 306
- 39 Institute of Secondary Instruction of the Noviciate, Madrid.—Complete collection of memoirs. 306
- 40 Pereda y Martinez, Sándalo de, Madrid.—Programme of natural history. 306
- 41 Puerta, Gabriel de la, Madrid.—Treatise on chemistry, medicine, etc. 306

- 42 Ramos Lafuente, Madrid.—Text-book for instruction in natural and physico-chemical sciences. 306
- 43 Salvador y Aznar, Felipe, Madrid.—Manual of book-keeping, etc. 306
- 44 Suñña y Castellet, Emeterio, Madrid.—Course of Latin. 306
- 45 Sanchez Casado, Félix, Madrid.—Bachelor's guide. 306
- 46 Fernandez Cardin, Joaquin Maria, Madrid.—Elements of mathematics. 306
- 47 Vailin y Bustillo, Acisclo F., Madrid.—Text-books of secondary instruction. 306
- 48 Vacufla, Gumersindo, Madrid.—Facultative works. 306
- 49 Institute of Secondary Instruction, Pamplona, Province of Navarra.—Memoirs, catalogues, plans, etc. 306
- 50 Literary University, Oviedo.—Books. 306
- 51 Institute of Secondary Instruction, Palencia.—Memoirs and treatises. 306
- 52 Literary University, Salamanca.—Memoirs, catalogues, discourses, etc. 306
- 53 Institute, Santander.—Books, speeches, catalogues, and photographs. 306
- 54 Menendez & Pintado, Marcelino, Santander.—Geometrical album. 306
- 55 Institute, Segovia.—Text-books. 306
- 56 Literary University, Sevilla.—Opening speeches. 306
- 57 Loscos, Francisco, Castelseras, Province of Teruel.—Herbarium for the study of botany. 306
- 58 Respaldiza, Domingo, Valladolid.—Books. 306
- 59 García Arboleya, José, Havana, Island of Cuba.—Logarithm tables. 306
- 60 Cerero, Rafael, Havana, Island of Cuba.—Treatise on the science of engineering. 306
- 61 Nautical School, Barcelona.—Text-books of the Director. 306
- 62 Fine Art School, Barcelona.—Programmes of instruction. 306
- 63 School of Industrial Engineers, Barcelona.—Tables and projects. 306
- 64 Cornet y Mas, Cayetano, Barcelona.—Compendium of Spanish tachygraphy. 306
- 65 Bris, Francisco Pelayo, Barcelona.—Collection of popular songs. 306
- 66 Miralles & Peris, Manuel, Barcelona.—Plan of studies in a mercantile college. 306
- 67 Veterinary School, Leon.—Memoirs dedicated to the Exhibition at Philadelphia. 306
- 68 Faculty of Medicine, Madrid.—Works. 306
- 69 Mata y Fontanet, Pedro, Madrid.—Medical works and treatises. 306
- 70 Cabello y Aso, Luis, Madrid.—Architectural essays and works. 306
- 71 Grande, José Maria, Madrid.—Works on singing. 306
- 72 Master of San Juan, Aureliano, Madrid.—Treatise on general anatomy. 306
- 73 Busto y Lopez, Andrés, Madrid.—Chirurgical pathology. 306
- 74 Quijano, Lopez, Carlos, Madrid.—Treatise on chirurgical operations. 306
- 75 Cortejarena & Aldebo, Francisco de, Madrid.—Manual of obstetrics. 306
- 76 Sanchez y Merino, Ramon, Madrid.—General treatise on fevers. 306
- 77 Santero y Moreno, Tomás, Madrid.—Medical clinic. 306
- 78 Fernandez de Figares, Manuel, Granada.—Manual of experimental physics. 306
- 79 Local Institute of Secondary Instruction, Baeza, Province of Jaen.—Photographs of its interior and exterior. 306
- 80 Mingote, Policarpo, Leon.—Course of geography. 306
- 81 Ruiz de la Peña, Francisco, Leon.—Latin translation, grammatical system, etc. 306
- 82 Prieto, Anastasio, Logroño.—Regulation for the Normal School. 306
- 83 Saenz Navarrete, José, Logroño.—Documents referring to the foundation and progress of his college. 306
- 84 Royal Academy, Madrid.—Collection of its works. 306
- 85 Carreras, Mariano, Madrid.—Political economy. 306
- 86 Fernandez de Castro, Manuel, Madrid.—Treatise on electricity, metallurgy, etc. 306
- 87 Cortázar, Daniel, Madrid.—Treatise on mathematics. 306
- 88 Comeleran, Francisco A., Madrid.—Treatise on the Latin language. 306
- 89 Chamorro, Rafael, Madrid.—System of explaining heat, light, electricity, etc. 306
- 90 Page, Eugenio Roman, Badajoz.—Register of property. 306
- 91 Graells, Francisco, Barcelona.—Geometric books. 306
- 92 Magza y Jaime, Juan, Barcelona.—Elementary treatise on physiology. 306
- 93 Superior Normal School of Masters, Barcelona.—Books. 306
- 94 Fernandez Fontecha, Francisco, Cádiz.—Course of astronomy and navigation. 306
- 95 Poly y Velasco, Federico, Cádiz.—Text-books. 306
- 96 Oferrall, Javier, Cádiz.—French selections. 306
- 97 Moreno y Espinosa, Alfonso, Cádiz.—Compendium of universal history. 306
- 98 Rubio y Diaz, Vicente, Cádiz.—Elements of mathematics. 306
- 99 Literary University, Santiago, Province of La Coruña.—Books. 306
- 100 Pimentel y Donaire, Miguel, Madrid.—Legislative collection on primary instruction. 306
- 101 Vilella y Font, Sebastian, Madrid.—Fables of Fedro. 306
- 102 Saco y Arce, Juan A., Orense.—Grammar. 306
- 103 Lasala Martinez, Atanasio, Orense.—Elements of arithmetic and algebra. 306
- 104 Gaité Nuñez, Joaquin, Orense.—Elements of arithmetic and geography. 306
- 105 Luciro Gonzales, Juan, Orense.—Works on philosophy. 306
- 106 Antigüedad, Celestino, Palencia.—Books on primary instruction. 306

- 107 Normal School, Palencia.—Books on primary instruction. 306
- 108 Flores Arrate, Leon, Palencia.—Writing books. 306
- 109 School of Music & Recitation, Madrid.—Memoirs. 306
- 110 Direction of Customs, Madrid.—Statistics. 306
- 111 Romero y Andía, Antonio, Madrid.—Musical instruction. 306
- 112 Lopez Almagro, Antonio, Madrid.—Method of playing the harmonium. 306
- 113 Gil y Justo Moné, Juan, Madrid.—Method of melodies. 306
- 114 Marzo y Feo, Enrique, Madrid.—Method of playing the hoboe. 306
- 115 Mata, Manuel de la, Madrid.—Method of playing the piano. 306
- 116 Nuñez Robres, Lázaro, Madrid.—The music of the people. 306
- 117 Ayllon, Rafael, Madrid.—Musical works. 306
- 118 Borrell, Mariano, Madrid.—Arts and industry. 306
- 119 Rebolledo, José A., Madrid.—Treatise on construction of houses, etc. 306
- 120 Novoa y Lopez, Angel, Pontevedra.—The pontifical infallibility. 306
- 121 Barrios, Cándido, Madrid.—Works on artillery. 306
- 122 School of Engineers of Highways, Canals, & Ports, Madrid.—Works. 306
- 123 School of Mountain Engineers, San Lorenzo del Escorial, Province of Madrid.—Memoirs of the school. 306
- 124 Corps of Engineers, Madrid.—Books, memoirs, and projects. 306
- 125 School of Mining Engineers, Madrid.—Books. 306
- 126 Veterinary School, Madrid.—Books and pictures. 306
- 127 High School of Architecture, Madrid.—Books, catalogues, and designs. 306
- 128 Conservatory of Arts, School of Commerce, etc., Madrid.—Memoirs, books, designs, studies, etc. 306
- 129 Gonzalez Hidalgo, Joaquin, Madrid.—Scientific works on natural history. 306
- 130 Llorente y Lázaro, Ramon, Madrid.—Compendium of the bibliography of Spanish veterinary system. 306
- 131 Ramirez, Concepcion, Madrid.—Treatise on the penal code. 306
- 132 Magaz, Juan, Madrid.—Elementary treatise on human physiology. 306
- 133 Seco Baldor, José, Madrid.—Study of the cholera of past centuries. 306
- 134 Calleja Sanchez, Julian, Madrid.—Scientific anatomy. 306
- 135 Bailly Baillière, Carlos, Madrid.—Catalogues of the museums and laboratories of the medical faculty. 306
- 136 Gastaldo, José, Madrid.—Cataract and its treatment. 306
- 137 Jareño de Alarcon, Francisco, Madrid.—Models and plans of the principal schools. 306
- 138 Calvo y Pereyra, Mariano, Madrid.—Architectural works. 306
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 499 Torrevias Tuncles, Martin, Mestas de Ibor, Province of Cáceres.—Cork and manufactures. 600
 500 Diaz Agero, José, Malladas y Fresno, Province of Cáceres.—Corks. 600
 501 Torre Diaz, Count of, Jerez de la Frontera, Province of Cádiz.—Cork. 600
 502 Castro Chirino, Alonzo, Isle of Hierro, Canary Islands.—Wood. 600
 503 Dominguez Mendez, Benigno, Isle of Hierro, Canary Islands.—Wood. 600
 504 Delgado, Francisco, Isle of Gran Canaria, Canary Islands.—Wood. 600
 505 Melian, Juan, Isle of Gran Canaria, Canary Islands.—Wood. 600
 506 Gonzalez, Manuel, Isle of Gran Canaria, Canary Islands.—Pine wood. 600
 507 Provincial Board of Agriculture, Castellon.—Cork. 600
 508 San Bernardo, Count of, Hornachuelos, Province of Córdoba.—Cork. 600
 509 Lopez Seoane, Victor, Coruña.—Collection of woods. 600
 510 Güito y Vall-llobera, José, Romaña, Province of Gerona.—Cork. 600
 511 Institute of Secondary Instruction, Province of Huelva.—Woods. 600
 512 Martin Carnes, Eulogio, Aracena, Province of Huelva.—Woods. 600
 513 King, Guillermo, & Co., Higuera de Aracena, Province of Huelva.—Cork. 600
 514 Corporation of Bollullos del Condado, Province of Huelva.—Cork. 600
 515 Chief Engineer of Woods & Forests, Province of Jaen.—Wood. 600
 516 Tuñon de Lara, Mateo, Carolina, Province of Jean.—Natural and prepared cork. 600
 517 Provincial Institute, Province of Lugo.—Woods. 600
 518 Corps of Forest Engineers, Madrid.—Woods, ashes, coal, and barks. 600
 519 Iscar, Fernando, Término de Cabaco, Province of Salamanca.—Cork. 600
 520 Catáneo, Francisco, Segovia.—Woods. 600
 521 Gonzalez de Salcedo, F., Constantina, Province of Seville.—Cork. 600
 522 Corporation of Poveda, Province of Soria.—Yew wood. 600
 523 Corporation of Gallinero, Province of Soria.—Beech wood. 600
 524 Corporation of Villaciervos, Province of Soria.—Juniper wood. 600
 525 Corporation of Talvalla, Province of Soria.—Pine wood. 600
 526 Corporation of Cortos, Province of Soria.—Oak wood. 600
 527 Corporation of Navaleño, Province of Soria.—Pine wood. 600
 528 Corporation of Molinos del Duero, Province of Soria.—Pine and poplar wood. 600
 529 Campos, Manuel María, Havana, Island of Cuba.—Construction woods. 600
 530 Inspection General of Woods & Forests, Havana, Island of Cuba.—Construction woods. 600
 531 Uribe & Pinilla, Navia de Luarca, Province of Oviedo.—Charcoal linget. 600
 532 Inspection of Woods & Forests, San Juan, Puerto Rico.—Woods. 600
 533 Gonzalez, Manuel, Aguadilla, Puerto Rico.—Ornamental woods. 601
 534 Quiroga Lopez, Benigno, Province of Lugo.—Construction and ornamental woods. 601
 535 Inspection General of Woods & Forests, Havana, Island of Cuba.—Ornamental woods. 601
 536 Verdú Peres, Joaquín, Monóvar, Province of Alicante.—Bastard saffron. 601
 537 Monroig, daughter and heir of Ramon, Barcelona.—Dye-stuffs. 601
 538 Sande Olivares, Jerónimo, Garrovillas, Province of Cáceres.—Dyers' weed. 602
 539 Aguilera, Francisco, Priego, Province of Córdoba.—Sumac. 602
 540 Lozano y Escobar, Romualdo, Buenache, Province of Cuenca.—Sumac. 602
 541 Gallego, Domingo, Buenache, Province of Cuenca.—Sumac powder. 602
 542 Corporation of Romancos, Province of Guadalajara.—Sumac. 602
 543 Ayuso de las Heras, Angel, Valdearenas, Province of Guadalajara.—Madder root. 602
 544 Acero, Antonio, Jaen.—Sumac. 602
 545 Guerra M. de Soto, Anacleto, Portillo, Province of Valladolid.—Madder root. 602
 546 Velicia, Félix, Traspinedo, Province of Valladolid.—Sumac. 602
 547 Inspection General of Woods & Forests, Havana, Island of Cuba.—Dye woods. 602
 548 Medinaceli, Duchess, widow of, Madrid.—Resinous products. 603
 549 Gonzalez, Manuel, Las Palmas, Canary Islands.—Resin. 603
 550 Avilés y Merino, Francisco, Córdoba.—Fennel resin. 603

- 551 Corps of Forest Engineers, Salas,** Province of Burgos.—Resinous products. 603
- 552 Corporation of Armallanes,** Province of Guadalajara.—Pitch. 603
- 553 Corporation of Mountain Engineers, Madrid.**—Resins. 603
- 554 Ferrandiz, Juan, San Vicente,** Province of Alicante.—Salt wort. 604
- 555 Gonzalez Conde, Diego, Mahora,** Province of Albacete.—Saffron. 602
- 556 Delgado, José, Tarazona, Province of Albacete.**—Dried saffron. 602
- 557 Perez, Albert, & Co., Monóvar,** Province of Alicante.—Anis. 602
- 558 Gonzales, Manuel, Gran Canaria,** Canary Islands.—Seeds. 602
- 559 Castro y Chirino, Alonzo de, Isle of Hierro,** Canary Islands.—Seeds. 602
- 560 Cabezuñas, Count of, Campo de Criptana,** Province of Ciudad-Real.—Saffron. 602
- 561 Rodriguez, Antonio, Manzanares,** Province of Ciudad-Real.—Saffron. 602
- 562 Rodriguez, Luis, Manzanares,** Province of Ciudad-Real.—Saffron. 602
- 563 Gonzalez y Rubio, Máximo, Ciudad-Real.**—Saffron. 602
- 564 Muñoz Mendez, Eugenio, Humanaes,** Province of Guadalajara.—Apricot seed. 605
- 565 Barnuevo, Manuel, Murcia.**—Pine seed. 605
- 566 Onís, Federico, Cantalapedra,** Province of Salamanca.—Flax seed. 605
- 567 Fernandes, Manuel, Tembleque,** Province of Toledo.—Saffron. 605
- 568 Corporation of Baños, Province of Cáceres.**—Chestnut burrs. 605
- 569 Sanz Pasalodos, Julian, Portillo,** Province of Valladolid.—Pine tree cones. 605
- 570 Sanz, Mariano, Pedrajas de San Esteban,** Province of Valladolid.—Pine seed. 605
- 571 Tablares, Felipe, Megues de Iscar,** Province of Valladolid.—Pine seed. 605

PHILIPPINE ISLANDS.

Educational Systems, Methods, and Libraries.

- 572 Municipal School for Girls, Province of Manila.**—Programme, etc., and pupils' work. 300
- 573 College of St. Tomas, Province of Manila.**—Tables, designs, etc. 300
- 574 College of San José, Province of Manila.**—Books and drawings. 300
- 575 Municipal Athenæum for Children, Province of Manila.**—Album, programme of instruction, and books. 300

- 576 Jordana y Morera, Ramon, Inspector-General of Woods & Forests, Province of Manila.**—Work on the production of the public forests of the Philippine Islands. 306

- 577 Vidal & Soler, Sebastian, Chief-Engineer of Woods & Forests, Province of Manila.**—Books on forestal, woods, and climate of the Philippine Islands. 306

- 578 Inspection-General of Woods & Forests.**—Books on arboriculture. 306

- 579 Loyzaga & Co., Province of Manila.**—“El Comercio” (evening paper), “Revista Mercantil” (semi-monthly paper). 306

- 580 Ramirez & Girandier, Province of Manila.**—“El Diario de Manila” (daily periodical). 306

- 581 Gonzalez & Moreno, Province of Manila.**—“Manual del Viajero” (The Travelers' Manual). 306

- 582 The Future of the Philippines, Province of Manila.**—“El Porvenir Filipino” (periodical). 306

- 583 Ramirez & Girandier, Province of Manila.**—“La Ilustracion” (semi-monthly paper). 306

- 584 Gimenez & Preysler, Province of Manila.**—“El Oriente” (semi-monthly illustrated paper). 306

Institutions and Organisations.

- 585 Prieto, Federico, Tabaco, Province of Albay.**—Human skulls. 312

- 586 Sales, Juan, Province of Manila.**—Models of negroes, Spanish mestizos, Philippine Indians, etc. 312

Engineering, Architecture, Maps, etc.

- 587 Inspection-General of Public Works, Manila, Province of Manila.**—Plans of public works. 330

- 588 Municipal Athenæum, Province of Manila.**—Meteorological observations. 335

Physical, Social, and Moral Condition of Mar.

- 589 Nueva Cáceres, Bishop of, Province of Nueva Cáceres.**—Books on religious instruction. 348

Aerial, Pneumatic, and Water Transportation.

- 590 Inspection-General of Woods & Forests.**—Models of boats and vessels. 594

- 591 Jackson, Eduard, Province of Manila.**—Model of lorch and life-boat. 594

- 592 Arsenal of Cavite, Province of Cavite.**—Models of boats and vessels. 594

No. 87. UNITED STATES SIGNAL OFFICE.

This exhibit consists of a field telegraph train, with battery, wire wagons, lance trucks, a portable signal tower, and other signaling appliances. It is situated on State Avenue, opposite the English Government buildings.

No. 88. TENNESSEE STATE HEADQUARTERS.

A circular tent, containing specimens of minerals, also a portable charcoal stove patented and exhibited by Rice Moore, of Nashville, Tennessee. Situated on State Avenue, between the Maryland and Iowa buildings.

No. 89. MISSISSIPPI STATE BUILDING.

Size, 42 feet by 25 feet.

Situated on State Avenue, opposite and west of the Japanese Dwelling. The wood used in this structure is from the State of Mississippi, and numbers some hundred varieties in all.

No. 90. GEORGE'S HILL RESTAURANT.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 112 feet by 72 feet.
TALMAN & KOHN, Philadelphia.

Located in the western portion of the grounds, on George's Hill, in the vicinity of the State buildings. It is a one-story structure, built of wood, and is also called the Hebrew Restaurant.

No. 91. BISHOP RICHARD ALLEN'S MONUMENT.

Size, base 6 feet by 6 feet; height, 16 feet.

Erected in memory of the Rev. Richard Allen, founder and first bishop of the African Methodist Episcopal Church; situated between Fountain and State Avenues, west of the United States Government Buildings.

No. 92. BOSTON "DAILY ADVERTISER," AND BOSTON "HERALD."

Size, 29 feet by 16 feet.

A one-story frame building, situated on Fountain Avenue opposite northwest corner of Machinery Hall; used as the headquarters of the correspondents and attaches of the newspapers erecting it.

No. 93. AMERICAN NEWSPAPER EXHIBITION.

Architect, M. J. MORILL, Brooklyn, N. Y.—Size, 70 feet by 46 feet.

GEO. P. ROWELL & Co., New York City.

A two-story frame structure of Swiss architecture, on Fountain Avenue, near the lake. It contains a large hall, and a reading-room supplied with newspapers from all parts of the United States. In April, 1876, the United States published regularly 8129 newspapers, a number which exceeds the combined issues of all the other nations of the earth. Regular files of most of these newspapers, and sample copies of all, are alphabetically arranged for exhibition, and a printed catalogue of the whole may be obtained for twenty-five cents. Messrs. George P. Rowell & Co. conduct an agency for the reception of advertisements for all American newspapers, at their office, No. 41 Park Row, New York.

No. 94. CALIFORNIA STATE BUILDING.

Size, 55 feet by 105 feet.

A two-story frame building, situated on State Avenue, opposite the British Government buildings. It contains accommodations for the State Commissioners and visitors, also a large hall for the purpose of exhibiting specimens of the agricultural productions of California.

No. 95. CENTENNIAL FIRE PATROL, No. 1.

This building is situated at the corner of Belmont and State Avenues, and contains two steam fire engines and one truck.

No. 96. TURKISH CAFÉ.

Architect, PIERRE MONTANI.—Size, 51 feet by 65 feet.
TURKISH COMMISSION.

An octagonal frame building, with a coffee-room, parlors, and bazaars, situated on a walk between Fountain Avenue and the Avenue of the Republic, near their junction north of Machinery Hall.

No. 97. FRANK LESLIE'S PAVILION.

This building is situated at eastern end of lake, on Belmont Avenue, adjoining the office of Cook, Son, & Jenkins. It is octagonal in shape, Moorish in design, and highly ornamented. It is used as an office of Frank Leslie's publications.

No. 98. IOWA STATE BUILDING.

Size, 40 feet by 53 feet.

This is a two-story frame building, with portico in front and bay windows on both sides, located on State Avenue between the Missouri and Tennessee buildings, and used as a headquarters for Commissioners from this State.

No. 99. RHODE ISLAND STATE BUILDING.

Architects, WM. R. WALKER and T. J. GOLD, Providence, R. I.

A building of combined Swiss and Gothic architecture, situated on State Avenue, north of the Mississippi State building.

No. 100. VERMONT STATE BUILDING.

Architect, LAMOS, Ticonderoga, Vt.

A building of Doric architecture, northwest of Machinery Hall, and near Fountain Avenue. It contains an Estey organ, from Brattleboro', Vt., and files of Vermont newspapers.

No. 101. MEMORIAL HALL (ART GALLERY).

See Part II., page 9.

No. 102. ART ANNEX.

See Part II., page 10.

No. 103. THE B'NAI B'RITH MONUMENT.

Erected by the Israelites to religious liberty, and situated between the Art Gallery and its annex.

No. 104. PHOTOGRAPHIC EXHIBITION BUILDING.

See Part II., page 137.

No. 105. VIENNA BAKERY, OR COMPRESSED YEAST BUILDING.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 146 feet by 105 feet.

GAFF, FLEISCHMANN, & CO., Blissville, Long Island, N. Y.

Designed to exhibit the advantages of using compound yeast in baking. It also contains a coffee house.

No. 106. ANNEX TO MAIN BUILDING (CARRIAGES, STOVES, etc.).

See Part I., page 374.

No. 107. SWEDISH SCHOOL-HOUSE AND METEOROGRAPH.

Architects, ISÆUS & JACOBSSON.—Size, 40 feet by 50 feet.

Situated in the Swedish Government grounds, north of the Main Exhibition Building. A one-story frame house, containing school-rooms and the interior arrangements of a Swedish school-house. The framework for the building was imported from Sweden, and is on exhibition by G. O. Wengstion, of Stockholm.

METEOROGRAPH.—A one-story latticed structure east of Swedish school-house, surmounted by semi-globular cups, connected with apparatus in the interior, showing the velocity of the wind.

No. 108. JAPANESE BAZAAR.

This building is situated on Lansdowne drive, immediately north of Department of Public Comfort, and is designed for sale of Japanese wares.

No. 109. JUDGES' HALL.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 152 feet by 113 feet.

A two-story frame building, situated north of the Main Exhibition Building, containing ten committee rooms and four private rooms for the judges; also one large hall in the centre, and a smaller hall in the rear. It is intended for the accommodation of the International Board of Judges. The President of the Centennial Commission and the Chief of the Bureau of Awards have offices in this building.

No. 110. CENTENNIAL PHOTOGRAPHIC ASSOCIATION BUILDING.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 150 feet by 30 feet.

The Photographic Association have erected a one-story frame building, located north of the Main Exhibition Building on the east side of Belmont Avenue. It contains one room for the exhibition of photographs, and three rooms for photographers for working purposes.

No. 111. SHEET METAL PAVILION.

Size, 22 feet by 40 feet.

Architect, E. C. RYER.

Situated on Lansdowne drive and Belmont Avenue, opposite lake. Marshall Bros. & Co., Girard Avenue below Front Street, Philadelphia, Pa., exhibit the utilization of galvanized and leaded sheets in the construction of this building. American polished, cleaned, and refined sheets, galvanized cemetery and house work, and corrugated iron. The building itself is a specimen of the workmanship of the Kittredge Cornice and Ornament Co., Salem, O., and illustrates the application of sheet metal to architectural purposes.

No. 112. GERMAN EMPIRE PAVILION.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 83 feet by 33 feet.

Constructed of stone, one story high, furnishing accommodations for the Imperial Commissioners as well as German visitors. It is located on Lansdowne drive, between Belmont and Agricultural Avenues.

No. 113. PENNSYLVANIA RAILROAD OFFICE.

Architect, J. M. WILSON, Engineer of Bridges and Buildings, Pennsylvania Railroad Co.—Octagon, 75 feet in diameter.

A two-story frame building, situated on the northeast corner of Belmont Avenue and the Avenue of the Republic, adjoining the Judges' Hall. It is designed for the general ticket office of the four great trunk lines, viz.: New York Central, Erie, Baltimore & Ohio, and Pennsylvania Railroads. Tickets are sold to all points, and information is furnished regarding routes of travel.

No. 114. OFFICE U. S. CENTENNIAL COMMISSION.

The western wing of the Public Comfort Building. It contains offices and committee rooms, and conveniences for newspaper correspondents.

No. 115. BRAZILIAN EMPIRE PAVILION.

This structure is of wood, situated on Lansdowne drive, adjoining the German Government building, and intended for use of the Brazilian Commission.

No. 116. THE DAIRY ASSOCIATION BUILDING.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 76 feet by 25 feet; pavilion, 80 feet by 30 feet.

Situated on the north side of Lansdowne Valley, southwest of Horticultural Hall. It is a two-story rustic building, and the surrounding grounds are laid out as a garden in which is a pavilion for the additional accommodation of visitors.

No. 117. RESTAURANT LAFAYETTE.

Architect, H. J. SCHWARZMANN.—Size, 130 feet by 30 feet.

This is a two-story wooden building, located northwest of the Art Gallery, between Lansdowne drive and the brook. It is conducted on the French plan.

No. 118. DEPARTMENT OF PUBLIC COMFORT.

Architects, BALDERSTON & HUTTON, Philadelphia.—Size, 264 feet by 112 feet.

DEPARTMENT OF PUBLIC COMFORT COMPANY, Limited.

W. MARSH KASSON, Chairman, Philadelphia.

Located on the corner of the Avenue of the Republic and Agricultural Avenue, opposite the northwestern corner of the Main Exhibition Building, and fronting the Esplanade. It is a two-story frame building, containing a reception room and ladies' parlor, free to all, barber shop, coat and baggage room, lunch counter, and lavatories. Tickets for places of amusement are on sale, and a daily register of all visitors is kept. The western section of the building is occupied by the President of the Centennial Commission. Office desk room is afforded to exhibitors. The centre portion of the building is surmounted with an open-air gallery, giving a view of the grounds.

No. 119. EMPIRE TRANSPORTATION COMPANY'S BUILDING.

Architects, WILSON BROS. & Co., Philadelphia.—Size, 70 feet by 60 feet.

EMPIRE TRANSPORTATION Co., Philadelphia.

This structure is located north of the eastern end of the Main Exhibition Building, and exhibits by models the method of transportation used by the Empire Transportation Company and its auxiliaries in the United States.

No. 120. FRENCH GOVERNMENT PAVILION.

Architect, DE DARTEIN, France.—Size, 100 feet by 50 feet.

DEPARTMENT OF PUBLIC WORKS, France.

Is constructed of brick and iron, and exhibits models in relief and designs of all the public works of France executed during the last few years; also a collection of books and publications relative thereto. It is situated west of the Art Gallery, on Lansdowne drive.

No. 121. CENTENNIAL FIRE PATROL.

Architect, H. J. SCHWARZMANN.—Size: (1.) 60 feet by 58 feet. (2.) 84 feet by 74 feet.

The Fire Patrol is accommodated in two buildings, built of wood, one story high.

containing halls for the engines, stalls for the horses, and dormitories for the firemen. The smaller house is at the northeast corner of the Main Exhibition Building, and the larger at the intersection of Lansdowne drive and Belmont Avenue. They are supplied with steam fire engines, hose trucks, ladders, and patent fire extinguishers.

NO. 122. THE PENNSYLVANIA EDUCATIONAL HALL.

Architects, PETERS & BURGER.—Size, 148 feet by 100 feet.

The object of this Hall is the exhibition of the educational interests of the State of Pennsylvania. It is situated north of the Art Gallery, fronting on the Lansdowne drive. The building is octagonal in shape, and contains thirty-two alcoves for the display, a large assembly room, and a reception room. The following summary represents the exhibits:

1 Representations of kindergarten, primary, grammar, and high schools, with their appropriate furniture, fittings, text-books, apparatus, and work.

Systems of graded schools, with views and models of buildings, charts of statistics, specimens of apparatus, and volumes of scholars' work.

Schools of counties, with county and township maps of school-houses, photographs of buildings, charts of statistics, and scholars' work; plans of school buildings, with systems of heating, lighting, and ventilating, and designs.

Department of Public Instruction charts, showing statistics and outline of public school system, reports, forms, certificates, and laws.

Text-books, school furniture and merchandise, school apparatus and philosophical apparatus; school ornamentation, consisting of a fountain, a series of Rogers' groups, vases, hanging baskets, statues, engravings, etc. 300

2 Academies and Seminaries, with pictures of buildings, specimens of apparatus, cabinet collections, drawings, and paintings.

Universities and colleges, with pictures of buildings, maps of grounds, views of interior rooms, charts of history and statistics, courses of study, text-books, and productions of professors and alumni.

Technical schools and departments, with drawings, casts, models of bridges, specimens of apparatus, etc. 301

3 Normal Schools.—Views of buildings and grounds, models, courses and methods of study, catalogues and reports, charts of statistics, and students' work.

Schools of Design.—Drawings, models, etc.

Commercial Schools.—Specimens of penmanship, etc. 302

4 Institution for the Blind.—Apparatus for teaching, intellectual and industrial work done by the blind.

Institution for the Deaf and Dumb.—Apparatus and methods of teaching. 303

5 Orphan Schools.—Views of buildings, scholars' intellectual and industrial work, books of record, forms and charts.

School for the Feeble-minded.—Text-books, apparatus, methods, etc. 346

6 Sunday-schools.—Collections of Sunday-school material, incentives, maps, charts, forms, and models. 348

7 Peirce's Union Business College, 39 South Tenth street, Philadelphia, Pa. Thomas May Peirce, M.A., Principal and Proprietor; Rev. John Thompson, Business Manager, Residence, 3002 Brandywine street.

BRIEF DESCRIPTION OF THE OBJECTS ON EXHIBITION. I. Penmanship: (A.) Seven (7) sets of resolutions engrossed by order of the Philadelphia Board of Public Education, at different times during the past five years, and borrowed from the owners for the purpose of showing the high order of talent employed by the college.

(B.) The improvement in writing of fourteen hundred (1400) pupils of the college, showing the success of the penman as a teacher. (C.) A "reward of merit" engrossed by the penman, the like of which is given once a month to the pupil who makes the most improvement in writing during the month. (D.) A large piece of "Specimens of Spencarian Penmanship," and a set of resolutions, complimentary of the Principal, written by the penman, and a "deceiving picture" made with pen, brush, and pencil, by the professor of drawing, each illustrating the power and ability of the executor. (E.) A piece of ornamental penmanship with a bouquet in the centre drawn with the pen, which with the drawings in the work done for the Board of Education, show the penman's skill in pen-drawing.

II. Book-keeping: (A.) A case of samples of merchandise used by the pupils of the college in the transaction of business among themselves in the Actual Business Department, thus furnishing each pupil with an original and independent set of transactions for his books. (B.) Samples of college currency used in the payment of bills, together with copies of the various business papers used by the students. III. Course of Instruction: (A.) A small piece of lettering naming the subjects taught. (B.) A diploma setting forth the subjects of examination for graduation. IV. Objects of Institution and Classes who patronize it: A large piece of penmanship setting forth the same in detail.

PARTICULAR MERIT WHICH THE EXHIBITOR CLAIMS FOR HIS EXHIBIT.—I. The highest order of talent in the penman in all the departments of work done with the pen. II. Superior plans for the improvement of the writing of pupils in addition to the excellence of the teacher. III. Ingenious and successful plans for teaching book-keeping and imparting a sound, practical, and economical preparation of young men for business life. 343

No. 123. TELEGRAPHIC BUILDING.

Architects, BALDERSTON & HUTTON, Philadelphia.—Size, 80 feet by 75 feet.

DEPARTMENT OF PUBLIC COMFORT COMPANY, Limited.

W. MARSH KASSON, Chairman, Philadelphia.

The reception room of the Public Comfort building opens from the east into the telegraphic department, which furnishes communication with every portion of the world. Is a one-story frame building opposite the northwest corner of the Main Exhibition Building, fronting the Esplanade. All of the instruments and appliances of the latest design are on exhibition and in use.

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| <p>1 Phillips, Wm. J., Philadelphia, Pa.—Printing telegraph instrument, combining the bell, dial, and printing telegraph in one instrument.</p> <p>2 Phillips, Eugene F., Providence, R. I.—Covered wire for telegraphic purposes.</p> <p>3 Gray, Elisha, Chicago, Ill.—Electro-harmonic telegraph, including apparatus for transmitting tunes and eight or more messages simultaneously.</p> <p>4 Atlantic & Pacific Telegraph Co., Philadelphia, Pa.—Automatic and duplex telegraph apparatus.</p> <p>5 Gray & Barton, Western Electric Telegraph Co., Chicago, Ill.—Printing telegraph instrument, with unison attachment.</p> | <p>6 Frost & Hanline, Philadelphia, Pa.—Automatic thermostat for fire-alarm telegraph.</p> <p>7 Brooks, David, Philadelphia, Pa.—Underground cables for telegraph wires.</p> <p>8 Gamewell, J. N., & Co., New York, N. Y.—American fire-alarm telegraph, with non-interference repeaters and signal-boxes, and mechanical gong apparatus.</p> <p>9 American District Telegraph Co., Philadelphia, Pa.—District telegraph signal-boxes, with self-starting registers for messengers, guides, and interpreters.</p> <p>10 Philadelphia, Reading, & Pottsville Telegraph Co., Philadelphia.—Duplex and Morse telegraph apparatus.</p> |
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No. 124. AMERICAN FUSEE COMPANY'S BUILDING.

Size, 14 feet by 14 feet.

W. R. DAVENPORT, New York.

Situated on Lansdowne drive, north of the Judges' building.

No. 125. GLASS MAGAZINE.

Architect, H. J. SCHWARZMANN.—Size, 40 feet by 40 feet.

KLAUTSHECK, THOMAS, & STUART, Philadelphia.

This magazine is erected adjoining the Photographic Association Building, opposite the lake. It is constructed mainly of glass from the factories of the above firm, and contains a full assortment of plate and window glass, and glass shades for the accommodation of exhibitors; is two stories high, and is connected by a bridge with Belmont Avenue.

No. 126. MOORISH VILLA.

Constructed in Morocco by native workmen; exhibited by Dr. Max Schmidl, for the display of native products and fancy articles; conducted by Abd el Kader ben Katib. It is situated on Lansdowne drive, opposite Sheet Metal Pavilion.

No. 127. AMERICAN BIBLE SOCIETY PAVILION.

Architect, I. C. SIDNEY.—Size, 17 feet by 23 feet.

Located near Lansdowne Valley, south of Horticultural Hall, close to the bridge; oval in shape, and surmounted by a carved roof with a projecting cornice. It bears the inscription, "The Bible without note or comment." In front is an open Bible, and over it the text from Jeremiah xxii. 29: "O earth, earth, earth, hear the word of the Lord." Only Bibles and Testaments are sold.

No. 128. HUNTERS' CAMP.

"FOREST AND STREAM" PUBLISHING CO., N. Y., WM. C. HARRIS, Manager.

This camp illustrates sportsmen's life in the backwoods, and contains what is known as a permanent camp, built of logs and bark, with all the appurtenances of hunting and fishing, including portable boats, sporting firearms, rods and fishing

tackle ready for use, portable cooking apparatus, specimens of game birds, a kennel of sporting dogs, etc., etc. An additional feature is a lake or pond stocked with game fish, and a running stream containing brook trout. It is located in the ravine south of Horticultural Hall.

No. 129. OFFICE WATER DEPARTMENT.

A frame building situated on Belmont Avenue, next to the Glass Magazine.

No. 130. SODA WATER STANDS.

These are located at various points east of Belmont Avenue and south of Fountain Avenue.

No. 131. CIGAR STANDS.

These are situated at various points east of Belmont Avenue and south of Fountain Avenue.

No. 132. SINGER SEWING MACHINE BUILDING.

Architect, JAMES VAN DYKE, Elizabeth.—Size, 81 feet by 56 feet.
SINGER MANUFACTURING CO., New York City.

Contains an exhibit of every style of machine manufactured by the Singer Manufacturing Company, and samples of work. It is constructed of wood, and is located on Lansdowne drive, north of the Art Gallery.

No. 133. MEDICAL DEPARTMENT.

Architect, H. J. SCHWARZMANN.—Size, 65 feet by 32 feet 6 inches.

This department is instituted for the immediate gratuitous relief of accidents and sudden cases of illness occurring within the Exhibition grounds. It is located in Lansdowne ravine, equidistant from the Main Building and Horticultural Hall, and contains two wards of three beds each, for male and female patients. An ambulance is provided for the removal of patients to their homes or to city hospitals.

Officers.

WILLIAM PEPPER, M.D., Medical Director.
THEODORE HERBERTE, M.D., Secretary and Resident Physician.
JACOB ROBERTS, M.D., Member of Staff.
S. W. GROSS, M.D., Member of Staff.
H. C. WOOD, M.D., Member of Staff.
R. G. CURTIN, M.D., Member of Staff.
HAMILTON OSGOOD, M.D., Member of Staff.
DE FORREST WILLARD, M.D., Member of Staff.

No. 134. PORTUGUESE GOVERNMENT BUILDING.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 55 feet by 51 feet.

A one-story wooden structure, with cupola, located on the northeast corner of Agricultural Avenue and Lansdowne drive, and used to accommodate Commissioners and visitors from Portugal.

No. 135. BANKERS' EXHIBIT.

Architect, JAMES H. WINDRIM, Philadelphia.—Size, 69 feet by 41 feet.

Erected by the banks, bank officers, and bankers of the country for the exhibition of coins and currency. It is located east of the Art Gallery, and between the Photographic Gallery and the Vienna Bakery.

No. 136. FRENCH GLASS EXHIBIT.

R. DE BERGNE.

This building is constructed entirely of glass, and situated on Lansdowne drive, adjoining Moorish Villa. Is designed to show window glass, tiles, marble, onyx, etc.

No. 137. KINDERGARTEN.

Located north of Carriage Annex on Lansdowne drive, designed to show object teaching. Is a wooden structure, one story high.

No. 138. CENTENNIAL POLICE STATION.

Situated at northeast corner of Main Building, designed for accommodation of police, with cells for prisoners.

No. 139. PHILADELPHIA PAVILION.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 88 feet by 66 feet.

For the accommodation of the municipal government of the city of Philadelphia. It contains a hall and parlors, and a room devoted to the use of the Park Commission. It is a one-story frame building, situated on Lansdowne drive, east of Horticultural Hall.

No. 140. MUSIC PAVILION.

Pavilion with ornamented dome, situated in Lansdowne Ravine, near the bridge. For use of bands.

No. 141. BURIAL CASKET BUILDING.

Architect, N. B. GLEASON, Rochester, N. Y.—Size, 42 feet by 22 feet.

SCHUYLER & ARMSTRONG and S. STEIN, Proprietors.

The exhibit consists of various designs of funeral caskets, shrouds, etc. It is a one-story frame house with turrets, and is situated on Lansdowne drive near the bridge, and north of Art Gallery Annex.

No. 142. PERFORATED METALS.

This is a one-story brick building with skylight, located between the Carriage Annex and Lansdowne drive, and designed to show the practicability of using perforated window blinds in dwellings.

No. 143. RUBBER ROOFING.

This building is situated on Lansdowne drive, between the Carriage Annex and Pennsylvania Educational Hall. It is octagonal in shape, and surmounted by a tower ten feet high. The exhibit consists of rubber roofing.

No. 144. OFFICE OF CUBAN ACCLIMATION GARDEN.

See Part IV., page 134.

Architect and Manager, JULES LACHAUME.—Size, 12 feet by 25 feet.

This structure is designed to show tropical produce, seeds, vegetable physiology, and rustic work, and is situated directly south of Horticultural Hall.

No. 145. NAVAL GROUP.

This bronze statue is situated on the plaza immediately west of Art Gallery.

No. 146. DYING LIONESS.

This bronze work of art is in the plaza due east of Art Gallery.

No. 151. HORTICULTURAL HALL.

See Part IV., page 147.

No. 152. AGRICULTURAL HALL.

See Part IV., page 9.

No. 153. WOMEN'S PAVILION.

See Part III., page 85.

No. 154. FROBEL'S KINDERGARTEN.

Architect, JAMES P. SIMS.—Size, 45 feet by 18 feet.

Situated northeast of the Women's Pavilion. Contains specimens of school work and illustrates the operation of kindergarten teaching.

No. 155. NEW JERSEY STATE BUILDING.

Architect, CARL PFEIFFER, New York.—Size, 56 feet by 82 feet.

A two-story wooden building erected for the accommodation of the New Jersey State Commissioners, containing offices and private rooms. It is situated on Belmont Avenue, adjacent to the Women's Pavilion. Messrs. Hall & Son, of Perth Amboy, N. J., furnished the brick in the chimney, and Messrs. Maurer & Brevier, of Perth Amboy, the tiles used in the roofing of the building.

No. 156. THE "SOUTH" RESTAURANT.

Architects, H. J. SCHWARZMANN.—Size, 182 feet by 92 feet.
E. MERCER, Atlanta, Ga.

Situated on the northwest corner of State and Belmont Avenues, and is a one-story frame building.

No. 157. KANSAS AND COLORADO STATE BUILDING.

Architect, E. F. KARR.—Size, 132 feet square.

This structure is intended for the accommodation of the Commissioners from the States of Kansas and Colorado, and also for exhibition purposes. It is a two-story wooden building, containing an exhibition hall, private rooms and offices, and is situated east of the Southern Restaurant. The Kansas exhibit consists of agricultural products, minerals, silk cocoons, building stone, cotton, plaster of Paris, birds and animals, and the Century Clock.

The Colorado exhibit embraces mineral, geological, and ornithological specimens, petrifications, views of Colorado scenery, the Maxwell cabinets of minerals, birds and animals of the Rocky Mountains, etc.

No. 158. NEW ENGLAND FARMER'S HOME AND MODERN KITCHEN.

Size, 49 feet by 35 feet.

MISS E. B. SOUTHWICK, Boston.

A representation of a New England farmer's home 100 years ago, combined with a modern kitchen, thus illustrating 1776 and 1876. It is one story high, and situated on the corner of State and Agricultural Avenues.

No. 159. THE AMERICAN RESTAURANT.

Architects, H. J. SCHWARZMANN, HUGH KAFKA.—Size, 300 feet by 200 feet.
TOBIASON & HEILBRUN, Philadelphia.

Situated between Agricultural and Horticultural Halls. The seating capacity is five thousand. The banquet room accommodates six hundred guests. The waiters

speaking various languages. There is a pavilion devoted to ice cream, etc. A bill of fare will be served either *à la carte* or *table d'hôte*.

No. 160. GERMAN RESTAURANT.

Architect, H. J. SCHWARZMANN.—Size, 200 feet by 150 feet.

PHILIP J. LAUBER, Philadelphia.

Contains three acres for garden arrangements, and is situated north of Horticultural Hall, on Lansdowne drive.

No. 161. TEA AND COFFEE PRESS EXTRACT BUILDING.

Architects, HAYES & MCIVOR, Elmira, N. Y.—Size, 100 feet by 45 feet.

A two-story frame building, composed of four observatories connected by verandas. Located opposite the southeast corner of the Agricultural Building, and devoted to the exhibition of the process of making coffee, tea, and other extracts, by means of pressure caused by the expansion of the materials used.

No. 162. BUTTER AND CHEESE FACTORY.

Size, 100 feet by 116 feet.

A model factory, three stories high, built of wood, and situated east of the Agricultural Building, between it and Lansdowne drive.

No. 163. SODA WATER STANDS.

These structures are located at various points east of Belmont and north of Fountain Avenues.

No. 164. CIGAR STANDS.

These stands are found at various points east of Belmont and north of Fountain Avenues.

No. 165. FARM WAGON ANNEX.

See Part IV., page 135.

No. 166. POMOLOGICAL ANNEX.

See Part IV., page 135.

No. 167. BREWERS' BUILDING.

See Part IV., page 136.

No. 168. APIARY.

See Part IV., page 140.

No. 169. PACIFIC GUANO COMPANY'S PAVILION.

MR. JOHN M. GLIDDON, Manager.

This is, in style, similar to a Moorish kiosk. The exhibit consists of various products of the soil, guano in its various processes of manufacture, models of company's works at Wood's Hole and Chisolius Island, fossil remains, etc., while several acres of ground, in close proximity to their pavilion, are planted in cotton, cane, tobacco, etc., to demonstrate the efficacy of their manufacture. The building is situated on Fountain Avenue, east of Women's Pavilion.

No. 170. ANNEX TO HORTICULTURAL HALL, OR SPECIAL FLOWER PAVILION.

This building is made of glass and iron, located immediately north of Horticultural Hall, and is intended for the display of specialties in flowers.

No. 171. WIND MILLS.

See Part IV., page 140.

No. 172. "PRACTICAL FARMER" (NEWSPAPER OFFICE).

See Part IV., page 140.

No. 173. HAY PRESS.

One Dedrich portable engine, six horse-power, for running hay presses. The presses take in loose hay, baling and banding 20 tons to the hour, or 280 bales.

No. 174. CENTENNIAL POLICE STATION.

A frame building situated east of Hay Press and Agricultural Hall, intended for accommodation of Centennial Guards.

No. 175. SAFETY ELEVATED RAILWAY.

ROY STONE, Proprietor.

This railroad is situated over Belmont Ravine, north of Horticultural Hall. It was designed by Roy Stone, and first erected at Phoenixville, Pa. Examined and fully approved by eminent engineers. Brought here as an exhibit and for conveyance of passengers under the concession to West End Railroad Co. Intended for rapid transit in cities, or for very cheap country railroad for passengers and freight.

No. 176. BOILER HOUSE.

Situated east of Agricultural Hall, and furnishes steam for engine in that building.

No. 177. VIRGINIA STATE BUILDING.

A frame structure one story high, with veranda all around, situated on State Avenue east of the Kansas and Colorado building, facing Horticultural grounds.

No. 178. THE PROTECTIVE FIRE APPARATUS COMPANY OF NEW YORK.

Size, 8 feet by 10 feet.

This is a one-story wooden building, situated on Agricultural Avenue, west of Agricultural Hall, and is designed to display fire extinguishers.

No. 179. POP-CORN STAND.

Situated at corner of Agricultural Avenue, near station of Narrow-Gauge Railroad.

No. 180. FOUNTAIN OF THE JORDAN L. MOTT IRON WORKS OF NEW YORK.

Located east of Horticultural Hall. This is an iron fountain 45 feet in diameter and 26 feet high. There are four figures at the base, and the top is surmounted by the design of "Venus Rising from the Sea."

In the interior of the different buildings are located several fountains of varied designs.

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